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MONTEREY, CALIFORNIA

THESIS

**MARINE CORPS BUDGETARY REPROGRAMMING
EFFECTIVENESS**

by

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March 2015

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MARINE CORPS BUDGETARY REPROGRAMMING EFFECTIVENESS

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Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

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ABSTRACT

Within the Department of Defense, funds are appropriated and budget authority is issued; resources are then executed accordingly. However, higher priority adjustments occur due to unintended and looming threats and needs. The abilities granted through the use of reprogramming allow for the shifting of funds within and among programs. Thus, service effectiveness in the execution of funding can be enhanced or reduced by the latitude granted to the defense department in its ability to reprogram funds.

Several methods of analysis, such as the measures of central tendency and the measures of dispersion, are applied supportive of reprogramming effectiveness. Through these methods this thesis tests the Marine Corps' effectiveness in its role of budgetary execution through the use of reprogramming activities for a 10-year period from 2005 to 2014. In order to properly compare and contrast reprogramming actions, data encompassing the entire DOD was gathered. Results show that Marine Corps reprogramming, much like the DOD, is on a downward trend although displaying varying results across major defense appropriations and between the services. Effectiveness traces the same line and remains relative to the overall decline of the budget authority.

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TABLE OF CONTENTS

I.	OVERVIEW	1
A.	INTRODUCTION.....	1
B.	BACKGROUND	3
	1. Budget Process	3
	2. Marine Corps Fiscal Landscape within the Department of the Navy.....	4
	a. <i>Department of the Navy Budget</i>	4
	3. Reprogramming and transfers	7
	a. <i>Legislation and Regulation</i>	7
	b. <i>Categories and Types</i>	8
	4. Importance.....	10
C.	LIMITATIONS	11
D.	PROBLEM	12
E.	RESEARCH QUESTION	12
F.	ORGANIZATION OF STUDY	13
II.	LITERATURE REVIEW	15
A.	BOOKS AND SCHOLARLY RESEARCH	15
	1. <i>Presidential Spending Power</i>	15
	2. <i>Research in Public Policy Analysis and Management, Volume 5, Mission Financing to Realign National Defense</i>	17
	3. <i>Financing National Defense, Policy and Process</i>	17
B.	STUDIES BY GOVERNMENT AGENCIES	19
	1. <i>U.S. General Accounting Office Budget Reprogramming: Department of Defense Process for Reprogramming Funds</i>	19
	2. <i>Budget Reprogramming: Opportunities to Improve DOD's Reprogramming Process</i>	21
C.	STUDIES BY THE NAVAL POSTGRADUATE SCHOOL.....	22
	1. <i>The Nature of DOD Reprogramming</i>	22
III.	METHODOLOGY	25
A.	OVERVIEW	25
	1. Measures of Central Tendency	25
	a. <i>Mean</i>	26
	b. <i>Median</i>	27
	2. Measures of Dispersion.....	27
	a. <i>Range</i>	28
	b. <i>Variance</i>	28
	c. <i>Standard Deviation</i>	29
	d. <i>Coefficient of Variation</i>	29
	e. <i>Frequency</i>	30
B.	DATA	30
	1. Sources of Data.....	30

2.	Organization of Data	33
3.	Inflation.....	34
IV.	ANALYSIS	37
A.	REASONS FOR REPROGRAMMING	37
B.	DEPARTMENT OF DEFENSE REPROGRAMMING ANALYSIS.....	40
1.	DOD Reprogramming	40
2.	Characteristic of DOD Reprogramming Actions.....	44
3.	Reprogramming of Major Appropriations	47
4.	DOD Statistics	48
5.	Change in Congressional Base.....	51
6.	DOD Frequency	52
7.	DOD Overall Reprogramming	55
C.	MARINE CORPS REPROGRAMMING ANALYSIS	57
1.	Marine Corps Reprogramming	57
2.	Reprogrammed Appropriations.....	59
a.	<i>Military Personnel Marine Corps</i>	60
b.	<i>Reserve Personnel Marine Corps</i>	62
c.	<i>Procurement Marine Corps</i>	63
d.	<i>Operations and Maintenance, Marine Corps</i>	64
e.	<i>Operations and Maintenance, Marine Corps Reserve</i>	67
f.	<i>Reprogrammed Appropriation Average</i>	68
3.	Marine Corps Reprogramming Statistics.....	70
V.	CONCLUSION	77
A.	SUMMARY	77
B.	DETERMINING MARINE CORPS EFFECTIVENESS.....	78
C.	FUTURE RESEARCH.....	80
	APPENDIX A. DOD DESCRIPTIVE STATISTICS (AFTER ROUM 2007, AND OUSD[C], 2007-2011, 2012A, 2013, 2014B).....	83
	APPENDIX B. VARIATIONAL REPROGRAMMING (AFTER ROUM 2007, AND OUSD[C], 2007-2011, 2012A, 2013, 2014B).....	85
	APPENDIX C. PRIOR APPROVAL AND INTERNAL REPROGRAMMING DOD BREAKDOWN (AFTER ROUM 2007, AND OUSD[C], 2007-2011, 2012A, 2013, 2014B).....	87
	APPENDIX D. FISCAL YEAR 2007 PRIOR APPROVAL REPROGRAMMING REQUEST (FROM OUSD[C], 2007).....	89
	APPENDIX E. DOD CURRENT (NOMINAL) GRAPHS AND CHARTS	93
	APPENDIX F. USMC CURRENT (NOMINAL) GRAPHS AND CHARTS	97
	LIST OF REFERENCES.....	101
	INITIAL DISTRIBUTION LIST	105

LIST OF FIGURES

Figure 1. DON Funding (after Office of the Assistant Secretary of the Navy [Financial Management and Comptroller], 2015)	5
Figure 2. USMC Major Appropriations 2005-2014 (after Office of the Under Secretary of Defense [Comptroller], 2014a).....	6
Figure 3. Ten-Year Average for Marine Corps Major Appropriations FY05-14 (after Office of the Under Secretary of Defense [Comptroller], 2014a)	7
Figure 4. Blue Green Split.....	18
Figure 5. Prior Approval Reprogramming Request – FY11-27 PA (from OUSD[C], 2011)	32
Figure 6. Reprogramming Systems Map.....	38
Figure 7. DOD Reprogramming Actions (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	41
Figure 8. DOD Reprogramming Transactions (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	41
Figure 9. PA and IR DOD Reprogramming Dollar Value (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b).....	43
Figure 10. DOD Reprogrammed Mean (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	49
Figure 11. DOD Coefficient of Variation (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	50
Figure 12. DOD Reprogramming Percentages of BA (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014a and b)	51
Figure 13. DOD Reprogramming Frequency (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	54
Figure 14. Total DOD Reprogramming Increases by Service (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b).....	56
Figure 15. DOD Reprogramming Performance (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	57
Figure 16. Marine Corps Reprogramming Transactions (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b).....	58
Figure 17. Department of the Navy Reprogrammed Dollar Values (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	59
Figure 18. USMC MILPERS Reprogramming (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	61
Figure 19. USMC MILPERS Reserve Reprogramming (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b).....	62
Figure 20. USMC Procurement Reprogramming (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	64
Figure 21. USMC Operations and Maintenance Reprogramming (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	65
Figure 22. Marine Corps O&M Reserve Reprogramming (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b).....	68

Figure 23. Marine Corps 10-Yr Average Increases (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	69
Figure 24. Marine Corps 10-Yr Average Decreases (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	69
Figure 25. USMC Reprogrammed Mean (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	73
Figure 26. USMC Reprogrammed CV (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	74
Figure 27. Correlation of DOD and USMC BA (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	75
Figure 28. Nominal - PA and IR DOD Reprogramming Dollar Value (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	93
Figure 29. Nominal – DOD Reprogrammed Mean (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	94
Figure 30. Nominal – PA Monetary Values by Quarter (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	95
Figure 31. Nominal – IR Monetary Values by Quarter (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	95
Figure 32. Nominal -Total DOD Reprogramming Increases by Service (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	96
Figure 33. Nominal – DON Reprogramming Comparison (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	97
Figure 34. Nominal - USMC Reprogrammed Mean (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	98
Figure 35. Nominal - Marine Corps MILPERS Reprogramming (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	98
Figure 36. Nominal - Marine Corps MILPERS Reserve Reprogramming (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	99
Figure 37. Nominal - Marine Corps Procurement Reprogramming (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	99
Figure 38. Nominal - Marine Corps O&M Reprogramming (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	100
Figure 39. Nominal - Marine Corps O&M Reserve Reprogramming (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	100

LIST OF TABLES

Table 1.	Total DOD Reprogramming Values (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	11
Table 2.	Measures of Central Tendency and Measures of Variation.....	26
Table 3.	DOD Deflator (after Green Book 2014, OUSD [C], 2014a)	35
Table 4.	DOD Prior Approval Reprogramming Actions (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b).....	42
Table 5.	DOD Internal Reprogramming Actions (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	42
Table 6.	Specialty Reprogramming Actions (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	44
Table 7.	Omnibus Transactions (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	45
Table 8.	DOD MRAP Funds Reprogrammed (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	46
Table 9.	Relative Value of Reprogramming Transactions (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b).....	48
Table 10.	Marine Corps Reprogrammed Values by Major Appropriation (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	60
Table 11.	Comparative Averages of Budget Authority and Reprogramming (after Roum 2007, OUSD[C], 2007-2011, 2012a, 2013, 2014a and b)	70
Table 12.	Marine Corps Reprogramming Statistics (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b).....	72
Table 13.	Nominal – DOD Omnibus Transactions (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	93
Table 14.	Nominal – DOD MRAP Transactions (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)	94
Table 15.	Nominal - Marine Corps Reprogrammed Values by Major Appropriation (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b).....	97

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LIST OF ACRONYMS AND ABBREVIATIONS

APN	Aircraft Procurement Navy
BTR	below threshold reprogramming
BISOG	blue in support of green
BA	budget authority
BES	budget estimate submission
CAPE	Cost Assessment and Program Evaluation
CY	calendar year
CJCS	Chairman of the Joint Chiefs of Staff
CV	coefficient of variation
CMC	Commandant of the Marine Corps
CBO	Congressional Budget Office
CRS	Congressional Research Service
CPI	consumer price index
DIA	Defense Intelligence Agency
DLA	Defense Logistics Agency
DSS	Defense Security Service
DPPG	defense planning and program guidance
DOD	Department of Defense
DON	Department of the Navy
ER	environmental restoration
EFV	expeditionary fighting vehicle
FH	family housing
FEMA	Federal Emergency Management Agency
FY	fiscal year
FCFD	Foreign Currency Fluctuations, Defense
FYDP	Future Years Defense Program
GAO	Government Accountability Office
HQMC	Headquarters, United States Marine Corps
HAC	House Appropriations Committee
HAC-D	House Defense Appropriations Subcommittee

HASC	House Armed Services Committee or House Committee on Armed Services
HR	House Resolution
HADR	Humanitarian Assistance and Disaster Relief
ICE	independent cost estimate
ICMA	Intelligence Community Management Account
IR	internal reprogramming
JIEDDO	Joint Improvised Explosive Device Defeat Organization
JSF	Joint strike fighter
JUONS	joint urgent operational needs
LCCE	life-cycle cost estimate
MEF	Marine Expeditionary Force
MILCON	military construction
MILCON-R	military construction reserve
MIP	Military Intelligence Program
MILPERS	military personnel
MPMC	Military Personnel Marine Corps
MRAP	Mine-Resistant Ambush Protected
MATV	MRAP all terrain vehicle
NGIA	National Geospatial-Intelligence Agency
NSA	National Security Agency
NAVSO P	Navy Standard Operating Procedures
NPS	Naval Postgraduate School
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
OMB	Office of Management and Budget
O&M	operations and maintenance
OMMC	Operations and Maintenance Marine Corps
OMMCR	Operations and Maintenance Marine Corps Reserve
OSD	Office of the Secretary of Defense
OUSD (C)	Office of the Under Secretary of Defense (Comptroller)

OSN (FM&C)	Office of the Secretary of the Navy (Financial Management and Comptroller)
PA	prior approval
PPBE	Planning Programming Budgeting and Execution
PPBS	Planning Programming Budgeting System
PANMC	Procurement of Ammunition Navy and Marine Corps
PMC	Procurement Marine Corps
POM	programming objective memorandum
RFP	request for proposal
RDT&E	research, development, test, and evaluation
RPMC	Reserve Personnel Marine Corps
TOA	total obligation authority
SecDef	Secretary of Defense
SAC	Senate Appropriations committee
SAC-D	Senate Defense Appropriations Subcommittee
SASC	Senate Armed Services Committee or Senate Committee on Armed Services
SCN	shipbuilding and conversion
STOVL	short take-off and vertical landing
UFR	unfunded requirements
USD AT&L	Under Secretary of Defense for Acquisition, Technology and Logistics
USMC	United States Marine Corps
WPN	weapons procurement

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I. OVERVIEW

A. INTRODUCTION

Reprogramming is the process of adjusting appropriated funds from their originally budgeted use. In a time of scarce resources, managing resources is critical to providing for the strategic defense of the nation and to ensuring local and foreign operations continue. Reprogramming results from the unplanned and unforeseen events such as war and conflicts, natural disasters, adjustments in cost estimations, and adjustments in priorities. The ability to shift funds provides for the flexibility to revise current programs to be effective and better suited for higher priority occurrences.

Examples of reprogramming may be seen in variety of unplanned and unforeseen events as related to in the next two cases. In September 2012, 15-armed insurgents breached the perimeter of a British forward operating base in Camp Bastion, Afghanistan. Next to Camp Bastion is Camp Leatherneck, home, at the time, to the 1st Marine Expeditionary Force (MEF) forward. A Marine Corps AV-8B Harrier squadron lay in wait on the flight line for the attacking insurgents. Marines sprung into a counter defense, eventually shuttering the attackers. Battle damage assessments were conducted; before the 15 insurgents were defeated two Marines were fatally injured with nine other U.S. personnel wounded. In addition, six harriers were destroyed and significant damage was sustained to two other harriers, an unforeseen incident resulting from war in Afghanistan. Later a prior approval (PA) reprogramming action was initiated and was submitted to Congress in September 2014 in order to replace the six destroyed harriers. In their place the PA requested six Joint Strike Fighter (JSF) F-35B, short takeoff and vertical landing (STOVL) aircraft for a total of \$880,453,000 (Prior Approval 14-13, OUSD [C], 2014). It would appear Congress would approve the request considering the harrier fleet is near the end of its useful life and plans are underway to retire the aging aircraft at the end of 2014 with the JSF. It can be considered that the request was an effective use of the authority to reprogram funds due to war losses however the request was denied.

The next example began in August of 2005 when a category five hurricane struck the Gulf Coast causing major damage and leaving many people in the southern United States without shelter. In conjunction with federal agencies such as Federal Emergency Management Agency (FEMA), specific military units were called in to help with the devastation left behind. These unforeseeable and unbudgeted natural disasters required the shifting of previously appropriated funds for a different purpose. In this case, funds previously budgeted and appropriated for were needed to fund military units for the disaster relief operations most characteristically associated with search and rescue and medical care. In the following years numerous reprogramming actions were submitted for approval by various military services.

One of the principal objectives of management is to effectively operate and control resources necessary to achieve organizational objectives. Effectiveness has many different variations based on situational context. In the military, effectiveness can be identified by having proper effects on a target or multiple targets using indirect artillery, through naval bombardment and through effective communication within command and control. On the other hand, effectiveness can be defined by way of the business management approach. In business management effectiveness is defined at the point at which an objective can be designated complete, by achieving the most value for the least cost. Reprogramming effectiveness can only be determined by a comprehensive examination of the data and developing conceptual conclusions.

This thesis seeks to understand the effectiveness to which the United States Marine Corps executes its funding through the use of budgetary reprogramming. This thesis begins with a historical review of the past ten years, specifically 2005 to 2014, of Department of Defense (DOD) reprogramming. Comparisons are employed exercising both qualitative and quantitative approaches. Qualitative methods include an activity systems map or also referred to as a process systems map along with historical relevance to reprogramming increases and decreases. Quantitative methods include descriptive statistics through the measures of central tendency, measures of dispersion, and frequency distributions.

B. BACKGROUND

Before we continue through the analysis of the past ten years of Marine Corps reprogramming it is important to lay the foundation or groundwork that facilitates reprogramming within the DOD. First, a brief summary of the budgetary process is presented, followed by a brief overview of the fiscal boundaries the Marine Corps operates within; encompassed by the budget authority (BA) granted to the Department of the Navy (DON). Next, a look at the definition of reprogramming, its categories and types will be provided along with the legislation and regulations backing the use and authorization to reprogram funds. Finally, this section will look at reprogramming's importance in the fiscal execution of defense budgets.

1. Budget Process

The defense department's budgetary process, known as the Planning, Programming, Budgeting, and Execution (PPBE) system, is made up of four distinct but overlapping phases or cycles. Depending on the time of year, three budgets are being managed; one of which is the execution of the current fiscal year (FY), while defending the next FY budget requests, and while also developing further FY budget requests (Brook, 2014).

Planning, programming, and budgeting are all a part of the creation of a defense budget while the sole purpose of the execution phase is to properly, efficiently, and effectively exercise the programs and guidance set forth in the budget estimate submission (BES) and programming objective memorandum (POM). It is the execution of the budget at the programmatic level that provides the military capability to operate at the strategic, operational, and tactical levels. Since planning, programming, and budgeting are underway so far in advance of the execution phase, a defensible budget requires assessment, analysis, and adjustment. It is in the final phase, execution that we see the use of reprogramming and transfers (Tyszkiewicz and Daggett, 1998).

2. Marine Corps Fiscal Landscape within the Department of the Navy

This section will take a glance at the budget authority granted to DON and more importantly impacting this thesis is the BA granted to the Marine Corps within the DON.

a. Department of the Navy Budget

The Department of the Navy (DON) budget is comprised of both the Navy, blue money, and Marine Corps budget, green dollars, while the Marine Corps budget is vastly reduced in comparison. Carrying a nominal average budget authority of just over \$143 billion, DON's budget trends upward but tapers off starting in FY 2011 and falls dramatically in 2013, predominantly due to budget cuts and sequestration. Fiscal year 2014 had a slight increase of funding from the prior fiscal year. Figure 1 illustrates DON's total BA portrayed in current dollars versus real FY 15 dollar figures, and also includes the Marine Corps BA for the most recent 15 years. Figures were drawn from the DON Budget Databook for FY 2015.

Additionally, Figures 1 through 3 incorporate the totals of the congressional base for DON and include defense supplemental appropriation amounts added throughout all the fiscal years illustrated.

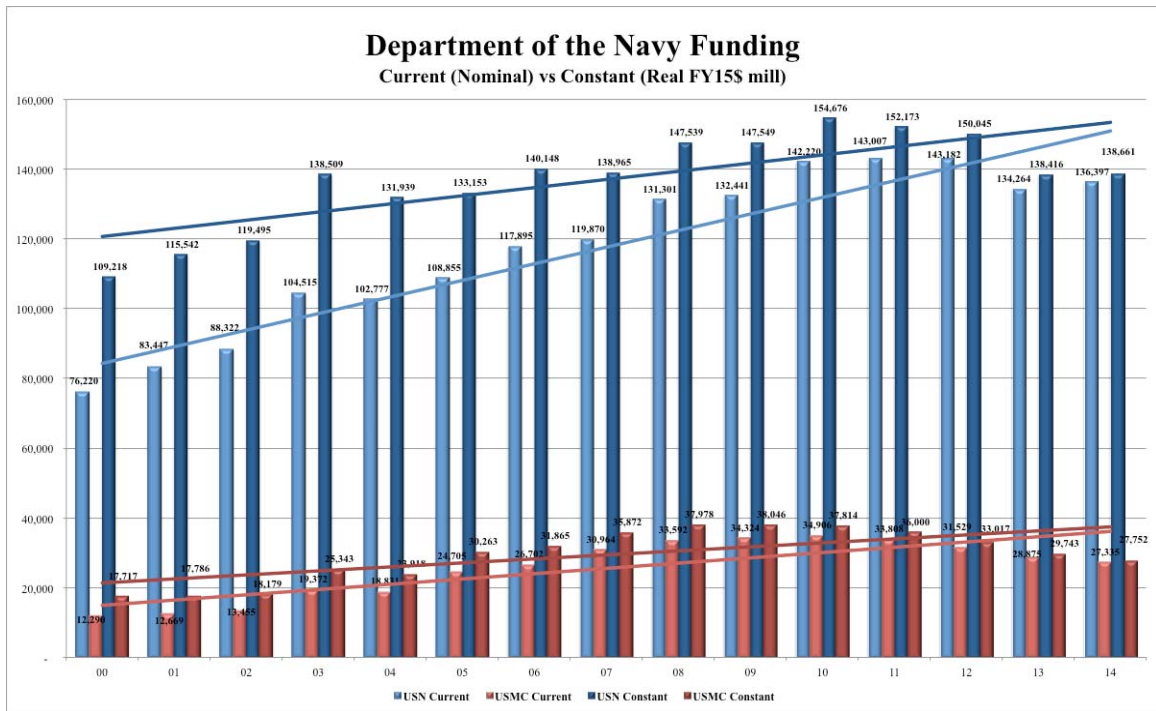


Figure 1. DON Funding (after Office of the Assistant Secretary of the Navy [Financial Management and Comptroller], 2015)

On average, with a high of just over \$38 billion in FY 09 and a low of \$17.7 billion, the Marine Corps represents 18.8 percent of DON budget. Observing real dollars, funding has decreased from FY 05 to FY 14 by 8.3 percent. However, with the exception of fiscal years 2005 to 2008, funding increased at a relative constant rate, steadied for a few years and began to fall much like the DON BA (Office of the Assistant Secretary of the Navy [Financial Management and Comptroller], 2015)

Carrying a nominal average of \$22.5 billion, funded levels remained continuous from FY 2008 to 2011, and then began to decrease throughout the remaining fiscal years. The start of a steady increase in overall funding can be pinpointed to the increase in procurement levels beginning in FY 07, alternatively procurement levels have dramatically fallen over the remaining appropriations leading to FY 14. Figure 2 demonstrates the relative and absolute distributions in major appropriation title levels. Starting with the y-axis working from FY 05 up to FY 14 and on the x-axis real (constant) FY 14 dollars in millions.

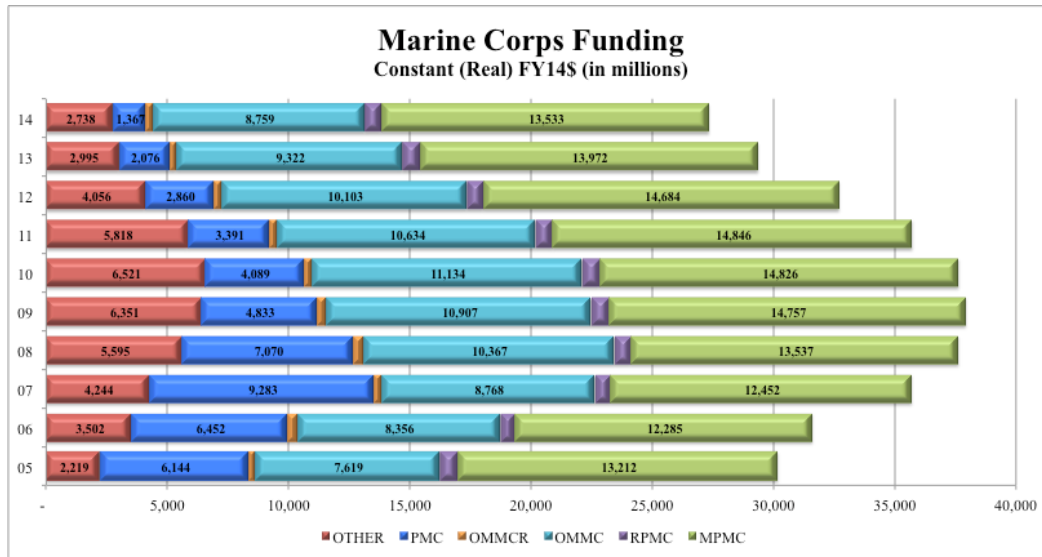


Figure 2. USMC Major Appropriations 2005-2014 (after Office of the Under Secretary of Defense [Comptroller], 2014a)

Budget authority for active military personnel, referred to as military personnel Marine Corps (MPMC), on average represents the majority of the Marine Corps budget with operation and maintenance Marine Corps (OMMC) representing the second largest percentage.

Figure 3 presents the ten-year average percentages for Marine Corps major appropriations. Throughout Figures 2 and 3, the reserve funding for military personnel and O&M represent a relatively small percentage of the Marine Corps budget. This is due to the relative size of the reserves as compared to the active duty forces within the Marine Corps.

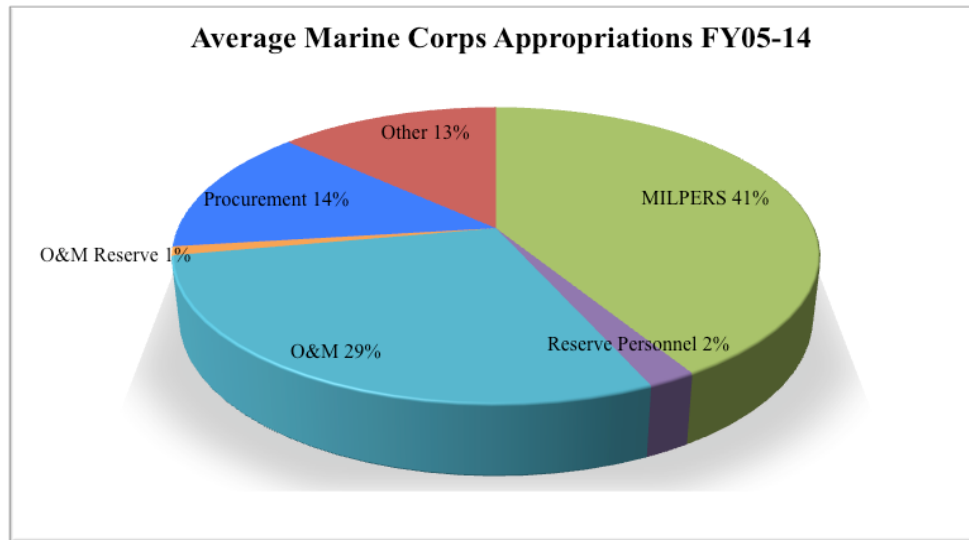


Figure 3. Ten-Year Average for Marine Corps Major Appropriations FY05-14 (after Office of the Under Secretary of Defense [Comptroller], 2014a)

3. Reprogramming and transfers

To identify reprogramming actions we will define transfers as the shifting of funds from one category of appropriation(s) to another appropriation(s) for a purpose other than budgeted. On the other hand, reprogramming is specifically the shifting of funds within appropriations. DOD uses the term reprogramming to refer to both transfers and reprogramming (Christensen, 2012). Both transfers and reprogramming allow for statutory latitude to make adjustments based on unforeseen requirements for not only the DOD but also other organizations or departments entirely or partially funded by the U.S. government. Within the DOD and its services, reprogramming occurs to fund higher priority items/events that were not previously budgeted for, which become essential for the defense of national interests (Tyszkiewicz and Dagget, 1998). However, there are specific regulations regarding the use of such privileges.

a. *Legislation and Regulation*

The contextual legal authority to transfer/reprogram congressionally approved defense dollars is located in two separate types of documents; the first document is through congressional legislation and the second by Department of Defense (DOD) regulations. Thus it is fitting that congressional approved defense dollars have

congressionally approved procedures for reprogramming actions. Legislative documents contain specific information as to the limitations of transfers/reprogramming authority granted to the Secretary of Defense (SecDef). Details concerning defense reprogramming can currently be found in Public Law 113-76 (House Resolution [HR] 3547): Consolidated Appropriations Act, 2014, signed January 17, 2014. And throughout Public Law 113-66 (HR 3304): National Defense Authorization Act for FY 2014, signed December 26, 2013.

In addition, DOD regulations enable reprogramming activities within the services. Two regulations effecting reprogramming are the DOD *Financial Management Regulation* Volume 3, Chapter 6: Reprogramming of DOD Appropriated funds (DOD 7000.14-R, dated March 2011) (OUSD [C], 2012b), and DON Office of the Secretary of the Navy (Financial Management and Comptroller) (OSN [FM&C]) *Financial Management Policy Manual*, NAVSO P-1000 revised through change 67, 12 December, 2012 (OSN [FM&C], 2012). Typically, when Congress adjusts reprogramming specifics, DOD would adjust their regulations thereby providing consistency in Congress. The DON regulation or instruction is specific to the Department of the Navy and thereby specific to the Marine Corps.

b. Categories and Types

Within the execution phase of defense budgeting, reprogramming is divided into two distinctive categories. Each category of reprogramming consists of a designated purpose and carries with it specific requirements. The first type of reprogramming is usually referred to as above threshold reprogramming and includes prior approval (PA), internal reprogramming (IR), and letter transfers (also called notification letters). The second category includes only one type of reprogramming referred to as below threshold reprogramming.

(1) Prior Approval

Prior approvals consist of those actions that specifically require congressional approval prior to implementation. Certain benchmarks cause the prior approval request(s) to be initiated. Those benchmarks may include increases in the quantities of a major end

item(s), certain appropriations and programs having direct congressional special interest, new start programs, and the program termination both costing more than \$20 million or more in procurement or \$10 million or more in research, development, test, and evaluation (RDT&E). As an example of a termination, due to many problems with the \$3 billion dollar expeditionary fight vehicle (EFV) (Feickert, 2014), which caused massive costs overruns, the program was terminated causing a prior approval (FY 12-14 PA, OUSD [C], 2012). If funds affecting special interest items are needed for another purpose, then prior approval is necessary. The following are additional criteria for triggering prior approval request.

- Military personnel—total increase of \$10 million or more if a budget activity
- Operation and maintenance—total cumulative increase of \$15 million or more of a budget activity, or depot maintenance group
- Procurement—total increase of \$10 million or more in line item; or decrease in \$10 million or more, or 20 percent of appropriated, whichever is larger
- RDT&E—total increase of \$4 million or more in a program; or decrease in \$10 million or more, or 20 percent of appropriated, whichever is larger

(2) Internal Reprogramming

Internal reprogramming are those actions that do not meet the thresholds of prior approval reprogramming and do not alter funds with congressional intent. Additionally internal reprogramming may be used to shift funds from transfer accounts, such as the Foreign Currency Fluctuations, Mine Resistant Ambush Protection Vehicle Fund, and the Iraqi Freedom Fund. Transfer accounts are usually maintained by the Office of the Secretary of Defense (OSD) and are those accounts that are used as a central location to house the funds until they are needed for the intended executable purpose.

(3) Congressional Letter Transfer Reprogramming

Congressional notifications are those actions that fall below prior approval reprogramming criteria for new programs or line items. Congressional letter reprogramming includes:

- New—procurement total cost less than \$20 million; RDT&E program costing less than \$10 million
- Terminations—procurement program costing less than \$20 million; RDT&E program costing less than \$10 million
- Safety modifications—total cost for either procurement or RDT&E of less than \$20 million

(4) Below Threshold Reprogramming

Below threshold reprogramming (BTR) is used for relatively minor adjustments and are still required to be reported via the Report of Programs, DD 1416 congressionally required semi-annually in aggregate, but are reported quarterly via standard operating procedures in the DOD. This report assembles the approved programs as enacted, reprogramming actions previously approved, undistributed transfers and amounts, and those funds that have been reprogrammed by the services using BTR authority. Typically, BTRs are considered outcomes that shift less than \$15 million in O&M, \$20 million or 20 percent of procurement line item, and \$10 million or 20 percent of RDT&E program elements. This form of reprogramming does not change congressional special interest items, does not use general transfer authority, or does not terminate or initiate new starts.

4. Importance

Based on agreements with congressional committees and DOD, reprogramming allows the military to meet needs in the defense of the nation due to changing external threats. It authorizes the DOD flexibility in the execution of its budget and provides congressional control and supervision. Reprogramming may be only one of many other categories within the execution phase of the PPBE system, still it contains relatively large monetary amounts that have legal, strategic and operational implications. Table 1 lists the totals for reprogramming for fiscal years (FY) 2005 to 2014. As an example, reprogramming has a very large monetary affect on DOD operations and national interests. Over a period of ten years, increases in both prior approval and internal reprogramming actions combined for nearly a total of \$235 billion in current (nominal)

dollars. Additionally, nearly 9.5 thousand lines of items (appropriation) were either increased or decreased.

Table 1. Total DOD Reprogramming Values (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

Totals FY 2005 - 2014	
Number of Reprogramming Actions	775
Number of Reprogramming Transactions	9,420
Dollar Value of Reprogramming Actions (bill)	\$234.69

Throughout this thesis we refer to increases as those reprogramming transactions requiring additional funding. While decreases are those reprogramming transactions from were internally allocated funding originates to cover required increases. More detail into the realm of reprogramming will be systematically discussed throughout Chapters IV and V.

C. LIMITATIONS

In gathering the data for this thesis it became evident that compiling every reprogramming transaction over the last ten years would be a trying issue. Given that the Marine Corps is not an independent service, falling under the Department of the Navy, it was problematic to draw out every particular specific reprogramming occurrence. Unless specifically stated in the documentation whether a reprogramming action(s)/transaction(s) affected a Marine Corps program, it was excluded from the Marine Corps data figures however still included in Navy figures. For example, the Marine Corps does not control its own major appropriations for aircraft procurement, weapons procurement for aircraft, military construction, or RDT&E. To add to the limitations not every justification specified whether reprogramming increases or decreases affected Marine Corps assets or programs, however they possibly could have. Some of these shared appropriations are discussed in the section on blue in support of green (BISOG). For consistency in evaluation, the following list of appropriations was not included in determining Marine Corps reprogramming effectiveness.

- Navy Aircraft Procurement (APN)
- Navy weapons procurement (WPN)
- Navy research, development, testing and evaluation (RDT&E)
- Procurement of ammunition, Navy and Marine Corps (PANMC)
- Military construction (MILCON)
- Family housing construction
- Family housing operations
- Joint Improvised Explosive Device Defeat Organization (JIEDDO)

Only green specific appropriations were analyzed and used in the performance of this thesis for the Marine Corps. Finally, only prior approval (PA) and internal reprogramming (IR) actions were gathered and examined for the purposes of this thesis. Below thresholds reprogramming and letter reprogramming were not included. Letter reprogramming contained no specific or indirect justification linking Marine Corps funding, while below threshold reprogramming contained inconsistent data from one quarter to the next.

D. PROBLEM

In the era of sequestration, the allocation of scarce resources may impede goal of management goals. Understanding the future needs of national defense allows the Marine Corps to assess budgetary decisions, assess the execution of programmatic actions, and adjust the POM/BES to better suit this need. Reprogramming allows resources to be moved within and among programs due to adjustments in impending threats and needs. Thus, service effectiveness in the execution of funding can be enhanced or reduced by the latitude granted to the defense department in its ability to reprogram funds.

E. RESEARCH QUESTION

Primary research question: What is the Marine Corps effectiveness of reprogramming actions in relation to the fiscally constrained budget?

Secondary research questions: Would an analysis of statistical data, dispersion, magnitude, frequency of reprogramming actions allow for conclusions to be drawn in order to affect the budgetary process within the Marine Corps?

F. ORGANIZATION OF STUDY

Chapter II begins with the foundation for this thesis. The chapter surveys the literature. The chapter is focused on the prior literature, providing an evaluation and a framework for this study. The literature and research detailed below provides an overarching yet progressive understanding and baseline into the broad scope of not only reprogramming but also the broader area of the defense budgetary process.

Chapter III provides the overview of methodology guiding the analysis for which reprogramming occurs. This chapter will provide the primary techniques and methods of empirical analysis to be used and applied in order to formulate a thorough understanding of the complex nature of reprogramming effectiveness spanning ten years. In addition the methods entail descriptive statistics through the measures of central tendency, along with measures of dispersion, and finally through frequency distributions.

Chapter IV begins with a consideration of why reprogramming occurs. Why it exists in the execution of defense budgets. The chapter presents assumptions based on the examination and analysis of the services reprogramming actions. Detail is revealed concerning the DOD as a whole and certain information revealed concerning other services.

Chapter V presents the finding and conclusions from the investigation into the effectiveness of both the DOD and particularly the Marine Corps reprogramming. It will conclude with suggestions for further research and study.

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II. LITERATURE REVIEW

A. BOOKS AND SCHOLARLY RESEARCH

Books and analytical research, spanning nearly 40 years, provided the guidance, foundation, and framework for this thesis. As stated in the previous chapter transfers/reprogramming are a subset of the broad and detailed process of the PPBE system, specifically the execution of appropriated funds through defense appropriations acts. To frame this literature review, we begin with Fisher's (1975) work on the historical developments that led to the establishment of congressional oversight on defense reprogramming. Jones and Bixler (1992) along with Jones, Candreva, and DeVore (2012) continue where Fisher left off and present evidence on the changes in reprogramming and transfers.

1. *Presidential Spending Power*

Fisher (1975) sets the qualitative historical groundwork upon how and why reprogramming was formulated into congressional oversight. He provides an in-depth case analysis of particular events in the legislature and National Defense. Fisher examines the notion that the term "reprogramming" did not emerge in government or defense terminology until the mid-1950s. Papers and articles put forth recommendations as to how congress should implement strategies for control and execution of monetary appropriations. During World War II, the execution of shifts in funding surfaced as a gentlemen's agreement. Essentially, the War Department was required to notify Congress in the event funds were required for use outside of their budgetary plan, due to the war (Fisher, 1975).

Most national, state, and local policies are drawn from significant events in our past that were not deemed as suitable to societal norms. The "power of the purse" set forth in the United States Constitution (Article I Section 8) sets actions that allow congressional oversight. Fisher (1975) contains both a general set of principles and examples of non-military references to reprogramming, eliminating any representation of bias in the form of military examples alone.

Fisher (1975) provides many examples where the military itself was at fault for the development of stringent reprogramming mandates. Specifying in the early formation of reprogramming rules, on occasion a reprogramming action would occur that broke or bent the agreed upon rules. Fisher details his first reason for reprogramming as “bypassing the congress,” a form of simply avoiding Congress all together thus avoiding the authorization and appropriations process. All the service department would have to do is receive positive endorsement from a sub-committee in the form of a reprogramming action. A second “ace in the hole” argument for rule bending on the part of DOD concerns an area where Congress has been inconclusive in coming to a resolution on a funding issue years earlier. Military services see this as an emergency reprogramming request and immediately receive an affirmative validation. In the third example “undoing the work of Congress” the author starts with the services using regular appropriations as a means to maneuver around an appropriation that was originally reduced by members of Congress. DOD would then get a portion or the entire reduced amount approved through reprogramming.

An alternative position is presented in the form of “circumventing thresholds” (Fisher, 1975). “Circumventing thresholds”, can be described as a form of piece-meal, where established limits are avoided by the use of multiple reprogramming actions. A fourth illustration is presented as “new starts” and can implicitly be explained as the use of reprogramming to start a new program. The final pattern or example is in the form of “risk taking.” Fisher proposes that when a defense organization is submitting, for instance a prior approval reprogramming request, the service department is admitting to an element of risk or failure of budget execution. He provides three reasons for the acceptance of fault; the first is that the prior approved and funded program was over budget. Second, is the admission of a mistake within a current program(s). Finally, the original program has been placed at a lower priority over a new program that was not budgeted for in DOD’s program objective memorandum (POM) submission to the Secretary of Defense and inevitably to the President. All three have lasting consequences on the part of the Defense Department in that Congress can take control and mandate a

program move funds or have programs cancelled, based on reprogramming actions (Fisher, 1975).

2. *Research in Public Policy Analysis and Management, Volume 5, Mission Financing to Realign National Defense*

Formulating a continuation of the extraordinary arena of reprogramming Jones and Bixler's (1992) work analyzes reprogramming from 1968 to 1990 in the sense of congressional controls within the defense budget. It explains the contextual nature of reprogramming and how it has won many arguments for how congress budgetarily controls the defense department through restrictions. Continuing in some degree where Fisher (1975) left off concerning the historical development of the regulations regarding the process of shifting funds, Jones and Bixler (1992) present evidence from a congressional house report from 1956. The quoted report within Jones and Bixler's (1992) work simply states that the services have in the past been allowed to have an unrestricted ability to shift appropriated funds without informing Congress. Congress then changed their stance on reprogramming due to increased pressures to control the execution of defense budgets. Unrestricted access to shift funds is in essence eliminated leading the defense department to effectively substantiate reprogramming actions, consequently conveying congressional scrutiny.

Another prime point of Jones and Bixler's (1992) work is the link between the notions of why requests are made for the reprogramming of funds. The authors present five examples of why reprogramming emerges. These are changes in the operational environment, adjustments in estimates, unforeseen matters, adjustments in rates and finally succeeding appropriations. By developing a more thorough assessment as to the reasons of why reprogramming occurs, one can begin to understand both systematically at the macro and micro levels of why reprogramming is needed today.

3. *Financing National Defense, Policy and Process*

Jones, Candreva, and DeVore (2012) present the historical establishment of the PPBE system by overlaying the reforms that led the way for what the defense department has today.

The authors state that, “execution is the exercise of authority,” in describing the execution phase of the PPBE system implying that execution is completely diverse from the first three phases (Jones, Candreva, and DeVore, 2012). The authors provide an outline of the goals of the four phases of the PPBE process. Simply stated the goal of execution is to effectively implement the policies and programs initiated by the budget. Implementation provides the desired military capabilities and thus provides for the next years of budget processes.

Figure 4 provides a visual representation of the DON process known as the blue-green split (BISOG) as shown in Jones, Candreva, and DeVore (2012). The authors state that when using the term direct, it implies that funds come directly from Navy controlled appropriations in support of Marine Corps programs. Specifically, Marine Corps aircraft are directly funded from Navy controlled major appropriations titled Aircraft Procurement. The term indirect in this form applies to programs and operations that if the Marine Corps did not exist the Navy would continue to fund Corpsmen and Chaplains (Jones et al., 2012).

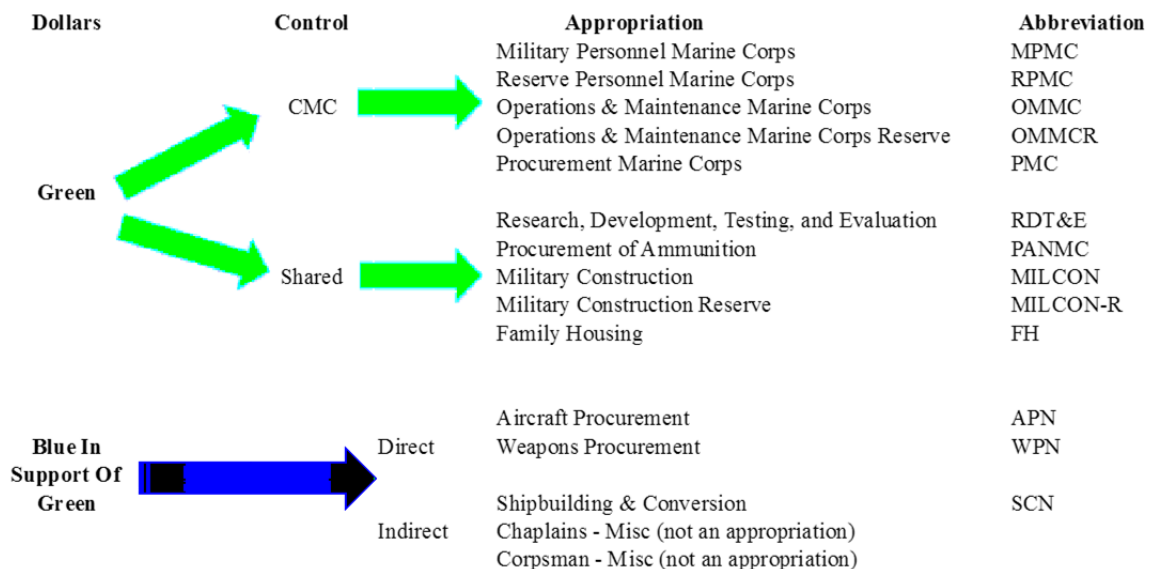


Figure 4. Blue Green Split

B. STUDIES BY GOVERNMENT AGENCIES

Government organizations such as the Government Accountability Office (GAO), the Congressional Research Service (CRS), and the Office of Management and Budget (OMB) provide an enormous amount of information. More than any other organization, the GAO and CRS document, analyze, and perform comprehensive reviews of Department of Defense (DOD) appropriations and occasionally investigate and survey the subject of reprogramming. Two reports by the GAO assess influence and provide evidence of the effects of reprogramming. The first assessment was conducted in 1986 as a review of the process of reprogramming in the defense department. The second GAO report (1989) disentangles and examines more closely the intrinsic details of the process and then provides recommendations for areas of improvement in both DOD and Congress.

1. *U.S. General Accounting Office Budget Reprogramming: Department of Defense Process for Reprogramming Funds*

The General Accounting Office, now known as the U.S. Government Accountability Office (GAO), upon request, provided Arkansas Senator David Pryor a summation of DOD reprogramming actions in 1986 for the period of FY 1981 to 1985. The GAO examination and inquiry offers a significant amount of contextual and historical information associated with DOD reprogramming in the early 1980s (GAO, 1986a). This study served as a precursor to future requests made by Congress for analysis into the shifting of funds within DOD.

As stated previously, DOD and the services use transfers and reprogramming interchangeably. When DOD and or the services refer to reprogramming they are referring to both reprogramming and transfers. Unlike many other studies, reports, and military instructions, the 1986 GAO report draws specific separation between transfers and reprogramming. The GAO report distinctly brings into context the legal authority granting permission to shift funds. The report goes on to state that reprogramming is non-statutory; that there are no governing guidelines sanctioning reprogramming. Conversely,

transfers are statutory in nature whereby general transfer authority is granted to DOD, specifically to the Secretary of Defense in the form of annual defense appropriations.

The GAO report continues by summarizing the reprogramming processes involved within the DOD and more specifically the review and approval process stipulated by Congress through the use of congressional sub-committees in the House and Senate. The report provides a detailed analysis of the actions taken by four congressional committees that are normally tied to the process of reprogramming. These four committees differ in some aspects as to how a reprogramming action takes place and passes (or not) through Congress. In 1980, the four committees were the House Committee on Appropriations, Senate Committee on Appropriations, House Committee on Armed Services, and the Senate Committee on Armed Services. These committees have since changed their names to reflect a more general sense. They are now known respectively as the House Armed Services Committee (HASC), Senate Armed Services Committee (SASC), House Appropriations Committee (HAC) and finally the Senate Appropriations Committee (SAC). The appropriations committees are further broken down into sub-committees that have a narrower defense focus. They are the Senate Defense Appropriations Subcommittee (SAC-D) and the House Defense Appropriations Subcommittee (HAC-D).

Quite interestingly, the report provides answers to concerns by Senator Pryor as to how members of Congress, not on any of the four committees, obtain reprogramming information, which could affect their constituents. The GAO (1986) asserts that there is no formal manner by which congressional members may receive information or provide their input into the DOD reprogramming process. Of course if the area of concern is of key interest, the congressman or congresswoman has an informal approach by contacting committee members and conveying their agenda or apprehension (GAO, 1986a).

The GAO report (1986a) provides quantitative evidence in the form of reprogramming statistics through fiscal years 1981 to 1985. The GAO begins with establishing the total budget authority (BA) authorized to DOD, with gross adjustments made over the course of the related fiscal year. The report continues with an examination

into further detail of arranging the total gross adjustments and overall line items, both additive and adverse, to the congressional BA base, represented by each service.

2. *Budget Reprogramming: Opportunities to Improve DOD's Reprogramming Process*

Upon request, the GAO provided Georgia Senator Sam Nunn, then Chairman on the Committee for Armed Services, an abstract of the DOD reprogramming process and proposals for improvements. The GAO report was to examine FY 1987 defense reprogramming actions and indeed the report reads as a final summary of an inspection into defense reprogramming rather than as an account of a quantitative analysis. However, unlike other formats of analysis into past performances, the GAO performed its analysis simultaneously over FY 1987, as the DOD submitted their request and also into the process of congressional review until approval or denial. The report found that from 1982 through 1987 the DOD submitted an annual average of \$3.3 billion (1.3 percent of BA) in reprogramming requests, and that each request followed set forth guidelines. The analysis depicts the processes involved in the amounts, submission, and reporting of reprogramming requests within the DOD and into the review process within Congress (GAO, 1989).

The GAO concluded that DOD followed reprogramming guidelines; however, reporting could be improved. Four of GAO's areas of concern and areas for improvement were pointed toward DD Form 1451-1 "Reprogramming Action," and are outlined as follows: (1) Data displayed as summary information, rather than as an amount related specifically to affected programs. (2) Identification of the presence of other unresolved actions for the same amount not visible. (3) Data on actions not requiring Congressional review not displayed. (4) Any amounts that are submitted in the President's budget are not presented. Within the GAO report (1989) the DOD responded (response document included in GAO report) in a response letter with partial concurrence. The DOD reflected back on the fact that the current agreed upon requirements met established guidelines by the committees. Additionally, the DOD responded that some of the suggested reporting requirements were unnecessary and could cause additional workloads (GAO, 1989).

Along with the DOD findings and responses, the GAO also examined the possibility of increasing the dollar threshold amounts for the purpose of reducing congressional review workload. The GAO concluded that due to rising budgets and increasing inflation costs, an increase in thresholds would only provide a short-term solution for a long-term issue (GAO, 1989). Coincidentally, increasing dollar thresholds has a relatively small impact on reducing total reprogramming actions.

C. STUDIES BY THE NAVAL POSTGRADUATE SCHOOL

Studies conducted as part of the master's thesis program of study from the Naval Postgraduate School (NPS) provides the final category of major sources for this literature review. A search for theses from educational institutions not affiliated with government or the military, regrettably, uncovered no research on the DOD budgetary process or defense reprogramming. A thorough examination of theses from NPS was conducted. Over the last few decades a small group of students at NPS have studied, analyzed, and researched the defense Planning, Programming, Budgeting and Execution (PPBE) system. One thesis attempted to further narrow the subject to DOD reprogramming. That thesis by Roum (2007) is a conceptual analysis of the benefits of a specified eight-year period from 1999 through 2006. In uncovering defense reprogramming, Roum (2007) identifies trends and relationships within DOD reprogramming processes.

1. *The Nature of DOD Reprogramming*

Roum (2007) is a conceptual analysis of the benefits of a specified eight-year period from 1999 through 2006 studying prior approval (PA) and internal reprogramming (IR) actions. In uncovering defense reprogramming, the author identifies trends and relationships within Department of Defense (DOD) reprogramming/transfer processes. Roum also describes the historical nature of what has been reprogrammed and how it was executed over the eight-year period. Roum's (2007) thesis incorporates a broad primary research claim by attempting to define the nature at which reprogramming occurs, is used, and is authorized. Roum's result is a detailed endeavor to capture the overall trends with the process of reprogramming.

Roum's claim and reason are supported by five durable objectives, eliminating any view of vagueness in the claim. He leans toward a more specific approach and showcases his analysis throughout the thesis (2007). Four of those five objectives lend more significantly to this thesis and are stipulated below in a brief overview of the supporting objectives, claims and supporting evidence. First, to quantitatively analyze reprogramming actions occurring annually and associating the typical dollars involved Roum asserts that magnitude and frequency together can show how extensive reprogramming occurs annually. He provides a representation of reprogramming actions of the FY represented in his thesis laid over the primary budgetary appropriations. Second, a determination of when defense reprogramming occurs within an annual period is presented. Roum (2007) asserts that when annual defense appropriations are not signed or approved before the start of a new fiscal year, a quantitative correlation between numbers of reprogramming actions and appropriations may be present. More specifically when Congress fails to pass appropriations due to presidential and bipartisan matters, reprogramming spikes as a result, which triggers the services attempt to spread the impact of failed appropriations affecting defense programs and operations. Roum's thesis provides sound evidence combining previous frequencies of reprogramming associated with the timing and amount of supplemental and regularly passed appropriations.

Next, Roum (2007) identifies the major categories of reprogramming, claiming that not all reprogramming actions can differ. There are reprogramming categories that require congressional approval and others that do not. This insight and knowledge into the categories of reprogramming can assist in a better understanding of the approval process. Roum (2007) provides sound evidence by defining the reprogramming categories through the DOD's Financial Management Regulations (2001) as prior approval and internal reprogramming actions, concluding that a majority of the reprogrammed funds were within prior approval shifts. Finally, a description of all defense appropriations accounts and frequencies are provided, claiming that this analysis may allow high-level military and (or) government leaders to develop policies that determine causes of why reprogramming was desirable over budgeting. Four reprogramming years were examined, which included the appropriations of O&M, procurement and finally

RDT&E, concluding O&M having the greatest increases in dollars moved over the years under review.

Using basic statistical analysis Rous (2007) concludes with four main themes associated with his research. First there appears to be distinct seasonal components for each category of reprogramming. The seasonal component for internal reprogramming (IR) occurs at two points, August to September and March to May. For prior approval (PA), seasonal attributes were found primarily in the months of March to May. Rous notes that the seasonal timing coincides with mid-year review and the end of the FY. Secondly, Rous (2007) does not identify meaningful trends in analyzing the number of transactions and dollar amounts in IR actions. The annual amount of funds internally reprogrammed was consistently around \$15 billion per year. The results for PA actions showed a marked increase over the period studied growing at a relatively constant rate from \$300,000 in 1999 to nearly \$8.2 billion over the eight-year examination period. Third, in deciphering the major defense appropriations, Rous finds that O&M then procurement accounts have the most reprogramming transactions and dollars affected. The author hypothesizes that the war in Iraq may have had a causal relationship to the significantly higher amounts of reprogrammed funds in the O&M accounts.

Rous (2007) points out that acquiring the data for manipulation and analysis for the study required manually inputting PA and IR actions recommending that a database containing all DOD reprogramming would allow for further analysis. Unfortunately, no database has been implemented or could be located by the DOD or DON.

III. METHODOLOGY

A. OVERVIEW

Upon extant literature it became evident that much like Roum's (2007) thesis there is no formally published analytical or scientific approach analyzing reprogramming. For this reason, many authors have leaned toward simple yet appealing statistical approaches that still have allowed for an in depth study into the shifting of funds. This chapter will provide the primary techniques and methods of analysis to be used and applied to the complex nature of reprogramming effectiveness. These methods entail descriptive statistics through the measures of central tendency, along with measures of dispersion, and finally through frequency distributions (Dixon, 2013). These approaches will allow for the relationships in the data to be determined, allowing for statistical inference to shape the conclusions underlying the analysis. An explanation is also provided as to where the data was collected, the sources of the data, how they were organized in order to afford an opportunity for the analysis to be conducted, and finally the use of constant (real) and current (nominal) dollars.

1. Measures of Central Tendency

Making informed decisions or inferences from complex data begins with the basic measures of central tendency. The term central tendency can be explained as finding the right measure or parameter that fits closely to the center of a given set or sets of data, thereby allowing for specific assumptions to be drawn. The three categories of the central tendency are the mean, median, and mode. They are three forms of calculating an average representative of a set of numbers/data, so that we may infer conclusions of a given set of data (Keller, 2009). However, in this thesis, the mode was found ineffective and eventually eliminated from the methodology.

After completing the organization and manipulation of reprogramming actions and their respective transactions within a given fiscal year a comparison across fiscal years or types of reprogramming can be compared using the two measures of central

tendency. These two methods contribute to this thesis two separate calculations each one in most cases contributing discernible information and estimates for assessment.

Table 2 represents the mathematical equations of the population and sample for the measures of central tendencies and measures of variation. A brief description of the characters used within the equations is provided:

- X_i = various quantity of a given observation
- N = number of data points in a population
- n = number of data point in a sample
- μ = mu = population mean
- \bar{X} = X bar = sample mean
- σ = sigma = population standard deviation
- s = sample standard deviation
- σ^2 = sigma squared = population variance
- s^2 = sample variance

Table 2. Measures of Central Tendency and Measures of Variation

	Population	Sample
Mean	$\mu = \frac{\sum_{i=1}^N X_i}{N}$	$\bar{x} = \frac{\sum_{i=1}^n X_i}{n}$
Variance	$\sigma^2 = \frac{\sum_{i=1}^N (X_i - \mu)^2}{N}$	$s^2 = \frac{\sum_{i=1}^n (X_i - \bar{X})^2}{n-1}$
Standard Deviation	$\sigma = \sqrt{\frac{\sum_{i=1}^N (X_i - \mu)^2}{N}} = \sqrt{\sigma^2}$	$s = \sqrt{\frac{\sum_{i=1}^n (X_i - \bar{X})^2}{n-1}} = \sqrt{s^2}$
Coefficient of Variation	$CV = \frac{\sigma}{\mu}$	$CV = \frac{s}{\bar{X}}$

a. Mean

The arithmetic mean in statistical data is the most often used measure of central tendency. Most often the mean is chosen in order to represent the central location of a

data set. The mean represented as μ , is referred to as the statistical average. It can be calculated from a numeric set of data by summing the set of values of the observations as the numerator, then dividing by the total number of observations (denominator). The mathematical equation for a population mean is given in Table 2. Occasionally, the mean does not appropriately describe a set of data and the mode or median is best suited as a descriptor. As an example, the median can be used as a measure of central tendency in a case when outliers are present within the data resulting in the mean represented as a poor fit of central tendency.

b. Median

The median is the numerical value separating the upper half of a data set from the lower half. By arranging a set of data from least to greatest or vice versa the median can be determined after first identifying the middle of the given set of data, sample, or population. This measure is useful in determining where a certain observation falls within a given data set. When presented with an even set of observations the median can be calculated by averaging the individual upper observation n_H with the lower observation n_L . However, like the mean, the median may not be the best choice in formulating an inference about a given data set.

2. Measures of Dispersion

Through the measures of the range, variance, standard deviation, and the coefficient of variation designated as the measures of dispersion or in some cases, the measures of variability. These statistical values provide the avenue to determine major fluctuations in the irregularity of reprogramming between DOD and the services. Primarily, this thesis is concerned with reprogramming conducted by the Marine Corps. Other fellow services reprogramming actions can provide a measure to compare how effectively the Marine Corps executes its funding. Additionally, the measures of dispersion can be used in assessing variability in appropriations when compared to the budget authority.

a. *Range*

The range of a data set is the difference from the highest and smallest observations referred to as n . The advantage of the range affords a modest calculation for an assessment of distribution of values. The disadvantage of the range arises in the following example. In a multiple data, if the highest and lowest observations resemble the same values across multiple samples. In this example the range will still be the same showing no relative difference in values (range) from one data set to the other, the range is then ineffective.

Previous the median was mentioned as a useful dynamic of the measure of central tendency. The median also represents that 50th percentile also referred to as the second quartile. The quartile then splits data into quarters such as the 25th and 75th percentile equal to the first and second quartile. Additionally the use of the percentile or quartile provides a useful means of establishing and referring to location of an observation in sample. One last quartile, the interquartile provides the location for the middle 50th percentile. Rather it affords a degree of separation or 25 percent spread above and below the median. The interquartile is equal to the third quartile minus the first quartile (Keller, 2009).

b. *Variance*

After calculating and deriving the best-fit number that represents a data set using measures of central tendencies we can now extrapolate more in the form of the variance referred to as the deviation of data from its mean squared. In calculating the differences of reprogramming, a variance will be established between fiscal years, services, and appropriations in order to compare and contrast allowing for conclusions to be developed. The equations for the variance (both population and sample) are provided in Table 2, but the variance can be calculated in the following manner. After calculating the mean, subtract the mean from a particular data point, square that difference, sum all the values of the squares and divide the total of the squares by the total number of observations. In the case of the sample variance, we divide the sum of squares by the total number of observations minus by one.

c. Standard Deviation

The standard deviation is more often used in descriptive statistics and is not the squared deviation but simply the deviation from the mean. It is calculated as the square root of the variance. When interpreting the standard deviation it can be stated that the data is plus or minus a certain standard deviation from the mean. The mathematical equation for a standard deviation is given in Table 2. The classical rule of thumb to follow for the standard deviation is given below (Keller, 2009):

- 68% of the data lies plus or minus one standard deviation from the mean
- 95% of the data lies plus or minus two standard deviation from the mean
- 99.7% of the data lies plus or minus three standard deviation from the mean

When interpreting a sample, consistency can be determined by computing the standard deviation to see how far the data set lies from the mean. In the case of reprogramming we will compute the standard deviation for each fiscal year and then determine how far increases or decreases in approved reprogrammed dollars lie away from the mean. The smaller the standard deviation the less spread out the approved dollars lie from the average, providing a more consistent look at reprogramming. The greater the standard deviation the greater the distance from the mean and conversely the result will be inconsistent.

d. Coefficient of Variation

The coefficient of variation (CV) also measures the relative size of dispersion from the mean however due to the magnitude of most standard deviations it provides a better representation for the dispersion. The CV for a single data type aims to describe the dispersion of the data in a way that does not depend on the data's measurement unit. It is calculated by dividing the sample standard deviation by the sample mean. Often, the result is multiplied by 100. The result implies a plus or minus percentage standard deviation away from the mean. The mathematical equation for a coefficient of variation is given in Table 2. In interpreting the CV, the smaller the result the less variability in the data, while the greater the CV result the more variability.

e. Frequency

Along with the measures of central tendency and measures of dispersion, frequency distributions provide the final form of comparison analysis for DOD reprogramming. Defense department reprogramming is a complex and informative area of study and simply provides a wealth of data. In order to effectively analyze reprogramming in a sufficient manner a graphical representation of the data can be used to make comparisons across fiscal years, appropriations, appropriations over fiscal years, and services.

Although, quantitative descriptive statistics and analytics will be used throughout the analysis portion of this thesis, it is not the only method expended. Other more simplistic approaches to scrutinize reprogramming include percentage analysis, cumulative dollar figures, and cumulative total actions/transactions of prior approval and internal reprogramming versus the services and appropriations, of which most will be presented graphically. These secondary quantitative approaches allow for a graphical descriptive analysis of the magnitude of reprogramming compared across multiple fiscal years and the four services.

B. DATA

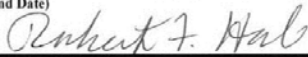
1. Sources of Data

In determining Marine Corps effectiveness in reprogramming, data had to be collected that was to be found accurate, reliable, and representative of the services. The ideal data source on DOD reprogramming was found through the Office of the Under Secretary of Defense, Comptroller (OUSD [C]) unclassified open source website containing data from 1999 to present (OUSD [C]). Data from the years 2005 and 2006 was made available through the data collection previously conducted by Roum's (2007) thesis, which was incorporated into the data after it had been verified and analyzed, while additional reprogramming data was collected/gathered from fiscal years 2007 to 2014, thereby totaling 10 years of data. Figure 5 displays the information found on the OUSD (C) budget execution site; reprogramming action, DD 1415-1 used by the DOD for both prior approval (PA) and internal reprogramming (IR) actions, submitted via the

services/departments to OSD to the appropriate congressional subcommittee for approval or to inform (OUSD [C], 2012b). In this particular, prior approval reprogramming action submitted in FY 2011 the Marine Corps transferred an equivalent \$10 million between two appropriations, O&M to MILPERS reserve. Both categories list their reason as to why funds were required and how or why funds were available. As Table 1 described in Chapter I, each of the 775 PA or IR actions were comprised of approximately 9,420 transactions affecting numerous appropriations across and beyond the DOD. Most often each action listed required transaction increases in appropriations usually followed by decreases in available funds and occasionally followed by further increases and decreases, sometimes between services and non-DOD entities.

It is important to note that reprogramming actions are not meant as a means for a balancing act within or between appropriations. Most often reprogramming actions were found to have fairly dispersed variances from increases and decreases, however over the course of the fiscal year those variances decreased variably in most cases. Variances occurred from congressional adjusts/denials, service adjustments prior to the action being submitted, or from simply human error. Occasionally, future reprogramming actions were used to adjust and readjust previously reprogrammed funds based on forthcoming operational and/or resource requirements. However, in other cases the explanations linking sources of funds was not straightforward as in Figure 5, for a further example of additional reprogramming action see Appendix D.

Unclassified **REPROGRAMMING ACTION – PRIOR APPROVAL** Page 1 of 1

Subject: Reserve Personnel, Marine Corps						DoD Serial Number: FY 11-27 PA			
Appropriation Title: Reserve Personnel Marine Corps, 11/11; and Operation and Maintenance, Marine Corps, 11/11						Includes Transfer? Yes			
Component Serial Number:		<i>(Amounts in Thousands of Dollars)</i>							
		Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprogramming Action		Revised Program	
Line Item		Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
a		b	c	d	e	f	g	h	i
<p>This reprogramming action is submitted for prior approval since it exceeds established reprogramming thresholds and uses general transfer authority. This reprogramming action transfers \$10.0 million from the Operation and Maintenance, Marine Corps, 11/11, appropriation to the Reserve Personnel, Marine Corps, 11/11, appropriation. This reprogramming action uses \$10.0 million in general transfer authority pursuant to section 8005 of Division A of Public Law 112-10, the Department of Defense (DoD) Appropriations Act, 2011; and section 1001 of Public Law 111-383, the Ike Skelton National Defense Authorization Act for Fiscal Year (FY) 2011. This action reprograms funding in support of higher priority items, based on unforeseen military requirements, than those for which originally appropriated; and are determined to be necessary in the national interest. It meets all administrative and legal requirements and none of the items have previously been denied by the Congress.</p>									
<u>FY 2011 REPROGRAMMING INCREASE:</u>						<u>+10,000</u>			
<u>Reserve Personnel Marine Corps, 11/11</u>						<u>+10,000</u>			
<u>Budget Activity 01: Reserve Component Training and Support</u>									
		683,086		683,086		+10,000		693,086	
<p><u>Explanation:</u> Funds are required to finance higher than anticipated participation rates in Pay Group A (Selected Marine Corps Reserve) and higher average strength levels.</p>									
<u>FY 2011 REPROGRAMMING DECREASE:</u>						<u>-10,000</u>			
<u>Operation and Maintenance, Marine Corps, 11/11</u>						<u>-10,000</u>			
<u>Budget Activity 03: Training and Recruiting</u>									
		1,027,537		1,027,537		-10,000		1,017,537	
<p><u>Explanation:</u> Funds are available from training range operations because of increased usage by deploying forces, which makes Marines unavailable for home station training since they are deployed.</p>									
Approved (Signature and Date)									
						SEP 21 2011			

DD 1415-1 UNCLASSIFIED

Figure 5. Prior Approval Reprogramming Request – FY11-27 PA (from OUSD[C], 2011)

In the case of the Marine Corps many circumstances arose that eliminated certain data sources. This was due to the Marine Corps being a sister service under the Department of the Navy (DON) and due to shared appropriations with the Navy (blue in

support of green, [BISOG]) as discussed previously. These reasons eliminated below threshold reprogramming (BTR) and letter notification reprogramming, both also found within the OUSD (C) open source website.

Additionally, data source for DOD budgets and funding matters was found and gathered through the same OUSD (C) unclassified open source website as previously mentioned. Budgetary data was also found through the Office of Management and Budget (OMB). The OMB source maintains historical tables and data from 1996 to the current year. These tables were used to gather and compare differences in discretionary defense authorizations, DON budgets and USMC budget figures.

2. Organization of Data

Data was gathered, recorded and organized using Microsoft Excel. This allowed for the ability to manipulate, organize and present data in an acceptable approach. In the case of reprogramming actions, Excel was used in the same manner as in Roum (2007). Within the workbook each fiscal year's reprogramming PA and IR action and its transactions were organized noting whether a transaction was a PA or IR, the serial number of the action, the date signed, approved, or reviewed, which service the individual transaction applied to, the major appropriation title influenced, fiscal year, and the transactions affecting minor appropriation title. An additional set of categories followed indicating whether the transaction involved overseas contingency operations (OCO), new start, or Military Intelligence Program (MIP). In this case, if a transaction was either OCO, new start, or MIP a number one referring to a yes or blank referring to a no was annotated.

Subsequently, within the same Excel workbook, each transaction's increase or decrease was gathered and recorded: this included the amount requested along with the amount approved. Next, a column calculated the difference in requested and approved reprogramming amounts while another column calculated the percentage change in requested and approved amounts by dividing the calculated change amount with the amount requested.

As a caveat, determining congressional approval or denial was not the question to answer within this thesis. Furthermore, accurately linking increases to their funded decreases or vice versa was not possible without further detail.

3. Inflation

Inflation occurs in the economy as a result of the fall or rise in the price of goods. Inflation within monetary values can be viewed in two distinct aspects. First, the amount of buying power an entity possesses is referred to as constant dollars, also stated as real dollars, and are values that have been corrected to account for inflation. Second, a separable fiscal years budgeted values (current year dollars), also referred to as nominal dollars, represent the value at the time received and or obligated (Nussbaum, 2014).

In a particular industry, such as the DOD, prices of associated goods rise and fall at varying rates. In particular, with the DOD, differences in the armed services and between major appropriations are not represented in the same inflationary values. The consumer price index (CPI), the standard in converting nominal to real dollars, is not useful in accounting for inflation inside the DOD as the CPI adjustments are based on labor rates and varying goods that are not associated with the defense industry. For instance, state governments do not frequently purchase fighter attack aircraft, tanks, or aircraft carriers along with their associated logistic requirements. For these reasons the DOD has created the DOD deflator, which represents changes in the price of goods as it relates to the DOD, its respective services, and major appropriations. Table 3 represents the inflation index of the total DOD deflator, obtained through the National Defense Budget estimates for FY 2014, also referred to as the DOD Green Book, for FY 2014 (OUSD [C], 2014a). In order to solve the difficulty of multiple deflators across thousands of different reprogramming transactions, and to retain consistency, the total DOD deflator was chosen across all calculations.

Table 3. DOD Deflator (after Green Book 2014, OUSD [C], 2014a)

FY	DOD Deflator
2005	81.87
2006	84.5
2007	86.74
2008	89.28
2009	90.5
2010	92.75
2011	94.65
2012	96.41
2013	98.34
2014	100

The values represented within the thesis that have been designated as real (constant) dollars were calculated by the following formula, $real = \frac{current}{FYdeflator} * (100)$.

Real dollars are also referred to as constant while current dollars are also referred to as nominal.

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IV. ANALYSIS

This chapter focuses on a detailed examination of the data to assess and infer the conclusions stated in this thesis. Starting with the reasons why reprogramming occurs. Secondly the analysis chapter offers an explanation of how the data was gathered and examined. The analysis concludes with an examination of all prior approval and internal reprogramming actions for the ten-year period from 2005 to 2014 for the DOD and the Marine Corps. To address Marine Corps effectiveness of reprogramming, it was necessary to include data from the other three services and DOD-wide. The data is then broken down and presented systematically by comparing services, via budgeted appropriations, and budget authority (BA).

A. REASONS FOR REPROGRAMMING

It is understandable that unforeseen events occur on a whim and cannot be properly budgeted for in any circumstance. Small businesses, companies, corporations, industry, military services, DOD, Department of Transportation, Department of Justice, Department of Homeland Security, NASA, Congress, and the president to name a few, all fall to the misfortunes of events that are not realized early in the development of a budget. The reality of budgeting is that the planned budget is not always the absolute answer; it is an estimate of spending for a time period that has not occurred. Attempting to determine the next threat to America involves chance, uncertainty, and risk. These along with scarce resources, cause the necessity to alter the course of budget plans. Carl von Clausewitz describes chance as related to war simply as luck and guesswork, *“No other human activity is so continuously or universally bound up in chance. And through the element of chance, guesswork and luck come to play a great part in war”* (Howard, 1976, p. 85). Reprogramming provides the flexibility to execute a congressionally approved fiscal budget in order to reduce uncertainty and risk in the midst of unforecasted events. There are however many other reasons for reprogramming; Figure 6 displays a few of those reasons.

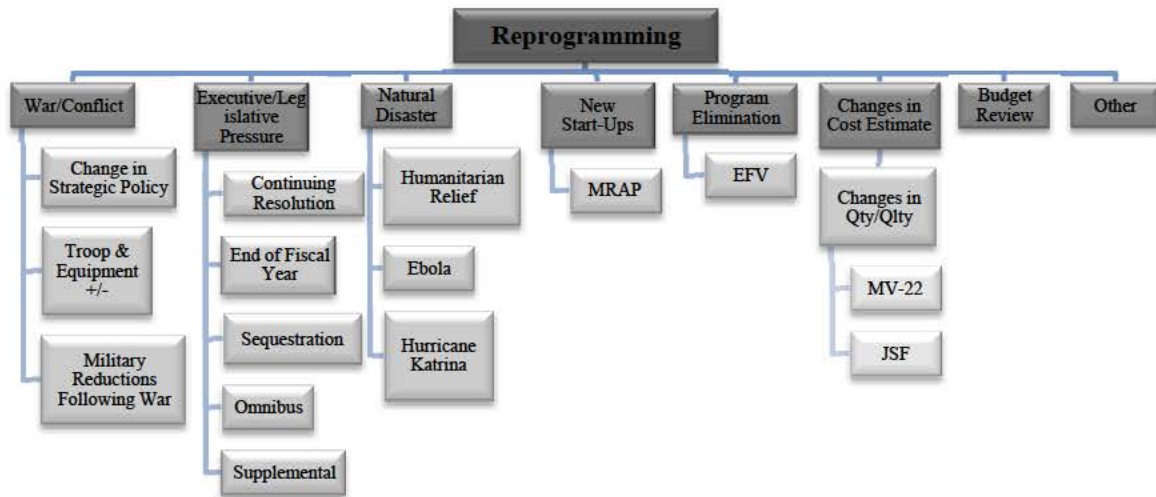


Figure 6. Reprogramming Systems Map

In this thesis, reasons for reprogramming can be broken into eight main areas. These eight areas, in no particular order, are war and conflicts, executive and legislative pressures, natural disasters, changes in cost estimates, program elimination, new start-ups, budget reviews, and other.

Starting with war and conflicts, which can be fought from the sea, air, land or a combination of the three, can have multiple effects on a budget. Changes in strategic policies have numerous implications to the budget process from how a war or conflict will be fought to equipment modernization on the battlefield. As evident in the years following an end of past wars, both manpower and equipment spending are greatly reduced. This commonly found reduction is not instantaneously achieved. Previous FY budgets under execution, which contain funding for appropriations that fall into the category of greater than one year, and cannot be simply adapted to the reduction in spending. This will become evident in the data presented in the subsequent chapters.

Executive and/or legislative pressures on Capitol Hill can affect approved budgets. These pressures include the end of the year possibility of continuing resolution(s) as in 2013, end of the fiscal year pressure to spend unused funds, and

current sequestration actions. In the introduction of omnibus bills and/or supplemental appropriations, services will submit PA or IR reprogramming requests based on the possible approval of these large bills and appropriation measures to ensure the suitable start to a program. To site an example of reprogramming as a consequence of Omnibus bills, supplemental, and political pressures from Washington, in March of 2007 DOD submitted a reprogramming request encompassing all services for the procurement of mine resistant ambush vehicles (MRAP). The later Global War on Terrorism (GWOT) supplemental request included the procurement of MRAPs. The reprogramming action was submitted ahead of DOD's submission of the FY 07 GWOT supplemental request, a short-term solution. The sudden procurement of MRAPs in 2007 were the result of first the DOD's failed Combatant Commanders equipment requests, termed joint urgent operational needs (JOUN), mixed with the long term needs of the services discovered by Defense Secretary Robert Gates (Gates, 2014). Once revealed, Secretary Gates released a directive for the immediate procurement of MRAPs making this acquisition the highest priority for DOD (Gates, 2014).

Natural disasters such as Hurricane Katrina in 2005, Hurricane Gustav in 2008, and the recent Ebola outbreak in West Africa in 2014 stirred up multiple reprogramming requests for the realignment of funds in response to immediate disaster relief efforts by the military services. For instance, in 2005, additional funds were required for the evacuation, repairs and other related costs taken on by DOD. In 2014, Army O&M funds were decreased by \$500 million to fund the Overseas Humanitarian, Disaster Assistance and Civic Aid fund related to the Ebola outbreak.

New start-up programs much like the MRAP program would encompass multiple actions. Over the 10 years covered in this thesis, 31 actions of which 28 IR and 3 PA actions would be submitted and ultimately approved for the MRAP program. Additionally program elimination such as the EFV, mentioned in Chapter I, emphasizes the use/requirement of reprogramming on the part of DOD.

Cost estimates such as the independent cost estimate (ICE) prepared by DOD Cost Assessment and Program Evaluation (CAPE) and the life-cycle cost estimate (LCCE), occasionally referred to as the "cradle to grave" estimate prepared by the service

component, estimate the costs for a program over its service life (DAU, 2006). Once final, the cost estimate is used in a program's request for proposal (RFP) and eventually in the contract. Adjustments to the cost estimate can greatly alter budgets based on changes, such as quantity increases in the joint strike fighter (JSF), or quantity decreases in the EFV, and alternatively increases in service life of major end items in aircraft carriers.

B. DEPARTMENT OF DEFENSE REPROGRAMMING ANALYSIS

Before we analyze the Marine Corps' effectiveness in reprogramming, it is important to first take a look at the bigger picture, mainly reprogramming from the perspective of the DOD as a whole vice one particular service. A breakdown of the defense department takes into account the magnitude to which military reprogramming takes place. It also provides a backstop to the main purpose of this thesis.

1. DOD Reprogramming

Within the 10-year period, the DOD has tallied 775 actions for a near \$235 billion dollars (calculated nominally) in reprogramming actions calculated for the time period (Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b). Figure 7 highlights defense-reprogramming actions over the time period by internal and prior approval reprogramming. On average, a typical fiscal year had approximately 77.5 reprogramming actions. As previously mentioned defense budget authority levels were on the rise in 2005 coming to a high in 2010, however reprogramming levels alternatively dropped considerably beginning in 2005. The drop in reprogramming levels may be related to or associated with PPBE modifications, acquisition reforms instituted by Under Secretary of Defense for Acquisition, Technology and Logistics (USD AT&L) in the better business regime of initiatives, or coming off a height of defense spending in relation to Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF). Furthermore, both PA and IR actions were on a steady decline beginning in 2008.

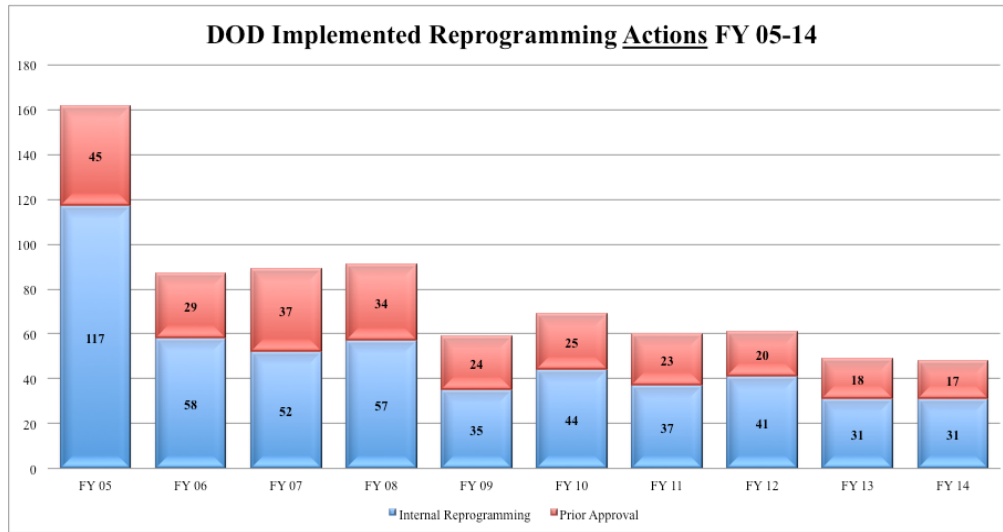


Figure 7. DOD Reprogramming Actions (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

While fiscal year reprogramming actions in both PA and IR's were decreasing over time, reprogramming transactions were relatively flat until FY 13 as shown in Figure 8. On average, reprogramming transactions totaled 942 per relative action. Again it is evident that while internal reprogramming transactions are decreasing, prior approval transactions are increasing over a period of time.

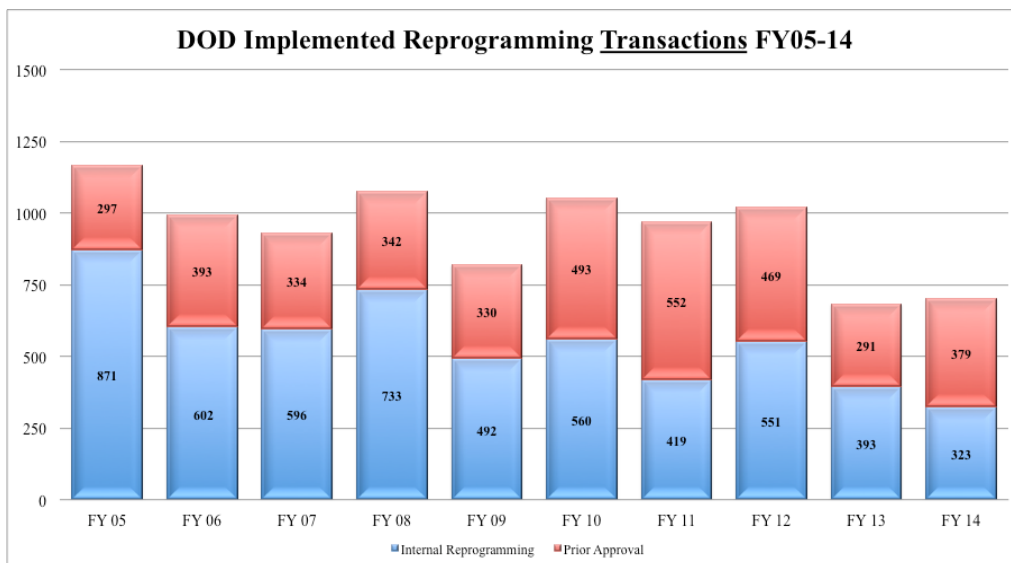


Figure 8. DOD Reprogramming Transactions (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

Tables 4 and 5 provide a numerical approach to both PA and IR for the period under study. PA transactions in 2005 are approximately 6.6 transactions per action, while in 2011 they reach their highest level of roughly 24.0 transaction per PA action. Similar to PA transactions, IR transactions are at their lowest point of nearly 7.5 in 2005. IR transactions per unit are at their highest point in 2009 at just over 14 transactions per unit. IR per unit transactions are steadier over the course of the 10 years studied when compared to PA transactions.

Table 4. DOD Prior Approval Reprogramming Actions (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

FY	DOD PA Actions	DOD PA Transactions	Transactions per PA Action
2005	45	297	6.60
2006	29	393	13.55
2007	37	334	9.3
2008	34	342	10.06
2009	24	330	13.75
2010	25	493	19.72
2011	23	552	24.0
2012	20	469	23.45
2013	18	291	16.17
2014	17	379	22.29
Total	272	3880	14.26

Table 5. DOD Internal Reprogramming Actions (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

FY	DOD IR Actions	DOD IR Transactions	Transactions per IR Action
2005	117	781	7.44
2006	58	602	10.38
2007	52	596	11.46
2008	57	733	12.86
2009	35	492	14.06
2010	44	560	12.73
2011	37	419	11.32
2012	41	551	13.44
2013	31	393	12.68
2014	31	323	10.42
Total	503	5540	11.01

The rate at which reprogramming is conducted on a fiscal year basis in the form of numerical actions and transactions contribute greatly to the overall impression of reprogramming. Yet, the sheer notion of the relation of the true financial significance reprogramming plays in the role of execution in the PPBE process of funded dollars to that of the congressionally approved budget authority is a principal question that lingers. Figure 9 provides some answers to the dollar amounts associated with reprogramming actions. Figures list dollar values per FY in real (constant) values, using FY 14 as the base year. Fiscal years were filtered by both PAs and IRs and the columns of increases summed to a total value. DOD decreases will be addressed further in this chapter.

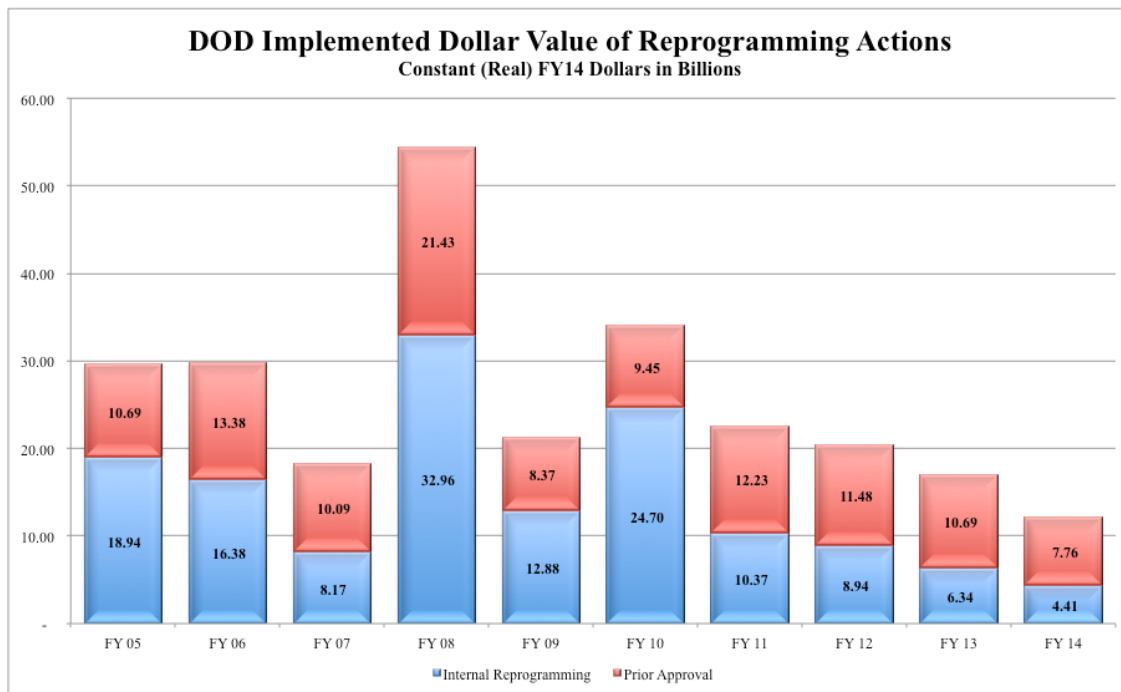


Figure 9. PA and IR DOD Reprogramming Dollar Value (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

Once again it is unmistakable that reprogrammed real dollars are trending downward. However, more noticeable and consistent with reprogramming actions in Figure 7, FY08 spikes to a high of over \$55 billion, with FY 10 trailing behind at nearly \$35 billion. On average, PA and IR values total \$11.6 and \$14.4 billion, respectively,

with an overall average of \$26 billion. In nominal dollars the overall reprogrammed value averages to \$23.5 billion.

2. Characteristic of DOD Reprogramming Actions

Over the course of analyzing the details of every reprogramming transaction in the ten-year span, patterns and/or trends began to develop. Fiscal year actions were compiled of mostly monthly type actions. DOD typically submitted one compiled monthly action consisting of numerous transactions affecting all services. However, other types of actions followed and filled the void in places where a normal action submission was not appropriate or deadlines squandered. Table 6 lists only a few of the primary varieties of submissions typically associated in a given FY throughout the ten-year period, and includes their total number of actions submitted to the Congress for approval.

Table 6. Specialty Reprogramming Actions (after Rouse 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
PA Omnibus	1	1	2	1	1	1	4	2	-	2	15
IR Omnibus	-	-	1	-	-	-	-	-	-	-	1
PA MRAP	-	-	2	-	1	-	-	-	-	-	3
IR MRAP	-	-	-	5	4	7	4	6	2	-	28
Environmental Restoration	4	3	2	4	3	5	4	2	3	3	33
FCFCD	8	6	6	6	4	3	2	7	5	3	50
Ship Costs	2	2	5	5	-	3	1	1	2	1	22
IR Drug Interdiction	4	4	5	6	3	3	4	5	5	5	44
MIP/Classified	6	7	8	6	8	8	9	12	5	9	78
Natural Disasters	7	4	-	3	-	2	-	-	-	1	17

Omnibus appropriations are immense bills that encompass many un-enacted appropriations (Brook, 2014). Omnibus reprogramming actions ensue as a result of previously approved appropriations because of three primary purposes. First, due to the special transfer authority provided in the omnibus bill, second a reprogramming transaction has fallen above the threshold amounts, and finally due to congressional special interest in a particular program. Omnibus PA actions occurred every fiscal year

excluding 2013, while IR Omnibus actions occurred once in FY07. Table 7 provides the total number of transactions along with the monetary values (increases then decreases) that took place as a result of the Omnibus appropriations for the ten-year period, with dollars in constant (real) FY14 base year values.

Table 7. Omnibus Transactions (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

FY	PA Transactions	IR Transactions	PA Dollar Value (\$M)	IR Dollar Value (\$M)
2005	128	-	1,958/1,679	-
2006	167	-	-	-
2007	157	53	3,635/3,745	152/152
2008	120	-	3,146/3,061	-
2009	156	-	3,343/3,265	-
2010	193	-	3,008/3,015	-
2011	377	-	7,161/7,340	-
2012	256	-	7,403/7,603	-
2013	-	-	-	-
2014	207	-	4,073/4,028	-
Total	1761	53	33,727/33,736	152/152

(Increases/Decreases in \$M)

PA and IR MRAP refer to the actions submitted to Congress for procurement along with operations and maintenance of the MRAP and MATV. These types of reprogramming actions also funded the transportation of the MRAP and MATV to Iraq and Afghanistan. Table 8 provides monetary values (increases then decreases) that took place as a result of the purchase and operation of the MRAP for the ten-year period, in constant (real) FY 14 base year values. In order to source the program requirement of such a large program, DOD created a transfer account termed the Mine Resistant Ambush Protected Vehicle Fund. Typically the MRAP fund transferred funding to the procurement and O&M appropriations accounts. Over the ten-year period DOD MRAP reprogramming actions accounted for over \$45 billion in increases and decreases.

Table 8. DOD MRAP Funds Reprogrammed (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

FY	Prior Approval	Internal Reprogramming
2005	-	-
2006	-	-
2007	1,685/1,685	-
2008	-	19,693/19,693
2009	100/100	6,244/6,244
2010	-	12,561/12,561
2011	-	3,873/3,873
2012	-	2,746/2,746
2013	-	656/656
2014	-	-
Total	2,169/2,169	45,773/45,773

(Increases/Decreases in \$M)

Reprogramming involving environmental restoration (ER) includes elements such as recycling and removal of hazardous materials; additionally funding the removal of retired infrastructure (Appropriations Act of Congress, 2008). The environmental restoration is a transfer account controlled by the DOD. Usually in the case of reprogramming ER transferred held funds to primarily the O&M major appropriation accounts of all the services.

Foreign Currency Fluctuations, Defense (FCFD), also a transfer account managed by the DOD, occurs as a result of the rise or fall of the U.S. dollar as compared to the foreign currency exchange rates. The FCFD account is used as a balancing instrument for the purchase of foreign goods and services to the O&M and MILPERS major appropriations accounts (GAO, 1986b).

Reprogramming actions classified as ship costs result from the procurement and sustainment of naval ships. Through the navy shipbuilding conversion fund, funds are shifted from various Navy and Marine Corps major appropriations.

Drug interdiction and counter drug actions regularly occurred as a consequence of the war on drugs not resulting directly in the U.S. but indirectly within overseas contingency operations (OCO). Typical appropriations affected were primarily reserve and National Guard MILPERS, O&M, and procurement. However, additional appropriations affected included defense-wide agencies such as the Defense Logistics Agency (DLA), Defense Intelligence Agency (DIA), and Defense Security Service (DSS) to list a few. Also non-defense agencies such as the National Security Agency (NSA), and National Geospatial-Intelligence Agency (NGIA) received funds from the drug interdiction and counter drug activities transfer fund.

Military Intelligence Program (MIP) and classified programs reprogramming actions are considered two somewhat similar actions that typically affected various major appropriations across the DOD. Funds originated from various appropriations but primarily from transfer accounts such as the Iraqi Security Forces Fund and the military intelligence program transfer fund.

Natural disaster reprogramming occurred as the name implies. Most funding originated from various appropriations internal to the service requiring additional funding. However, funding also initiated from transfer accounts such as the Overseas Humanitarian, Disaster Assistance, and Civic Aid fund.

3. Reprogramming of Major Appropriations

The total size of DOD reprogrammed dollars is informative but enhanced by separating the values into their major appropriations. The type of major defense appropriations that are reprogrammed internal to the defense department, over the period studied, can lead to a representative value of varying detail. In this instance overall DOD observations (transactions) throughout the fiscal years were summed excluding their monetary values. The complete trends in relative reprogramming observations within their respective appropriations were calculated as a percentage of total reprogramming observations separated by FY displayed in Table 9. The table then presents the accounts that required additional funding do to un-forecasted shortfalls or changes in priority.

Table 9. Relative Value of Reprogramming Transactions (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

	05	06	07	08	09	10	11	12	13	14	Appn/Fund AVG %
MILPERS	12.1	13.6	8.5	8.6	9.7	10.5	12.3	10.1	16.2	17	11.6%
O&M	30.1	29.6	26.5	29.1	24.2	25.9	35.8	27.8	31.9	31.9	29.2%
Procurement	19.6	24	20.4	20.9	25.2	27	27.4	25.9	20	25.5	23.6%
RDT&E	14.7	13.5	20.2	19	22.5	20.9	15.7	18.1	11.3	13.2	17.1%
MILCON/ Housing	9.4	10	8.8	10	8.9	4.2	-	8.3	8.2	2.7	7.2%
Transfer Funds & Other Programs	14.1	9.4	15.6	12.5	9.2	11.4	8.4	9.4	12.4	9.1	11.3
Non-DOD	-	-	-	-	0.2	0.1	0.4	0.3	-	0.6	0.1%

Transfer funds and other programs include all types of appropriations and transfer funds not associated with the five other categories. They include, but not limited to, accounts such as ship modification and conversion, contingency operations fund, revolving transfer funds, and other DOD programs. Non-DOD programs primarily such the Intelligence Community Management Account (ICMA) were categorized individually.

Operations and Maintenance accounted for a majority of reprogramming through every fiscal year excluding both FY 09 and FY 10. O&M held an average of nearly 30 percent of reprogramming transactions over the period. In fiscal years 09 and 10, procurement exceeded O&M by approximately one percentage point in total reprogramming transactions. Over the 10-year period, procurement averaged 23.6 percent. Ranging from zero to 10 percent, military construction and military housing had the lowest portion of reprogrammed transactions. MILPERS had approximately 12 percent of reprogramming transactions.

4. DOD Statistics

Department of Defense reprogramming descriptive statistics by fiscal years have been provided and broken-down into four categories, with each category containing the

same information. Prior approval increases and decreases along with internal reprogramming increases and decreases were included. Each set of descriptive statistics contain the number of PA or IR transactions, minimum, first quartile, median, third quartile, maximum, interquartile range, mean, standard deviation, coefficient of variation, and total dollar value. This data can be found in Appendix A.

Represented in Figure 10 represents a graph showcasing the DOD's average of reprogramming dollar values over the time period examined. The information is presented by fiscal year on the horizontal axis and dollar value in real millions of dollars on the vertical axis. The data is further broken down into prior approval, internal reprogramming, along with representative increases and decreases.

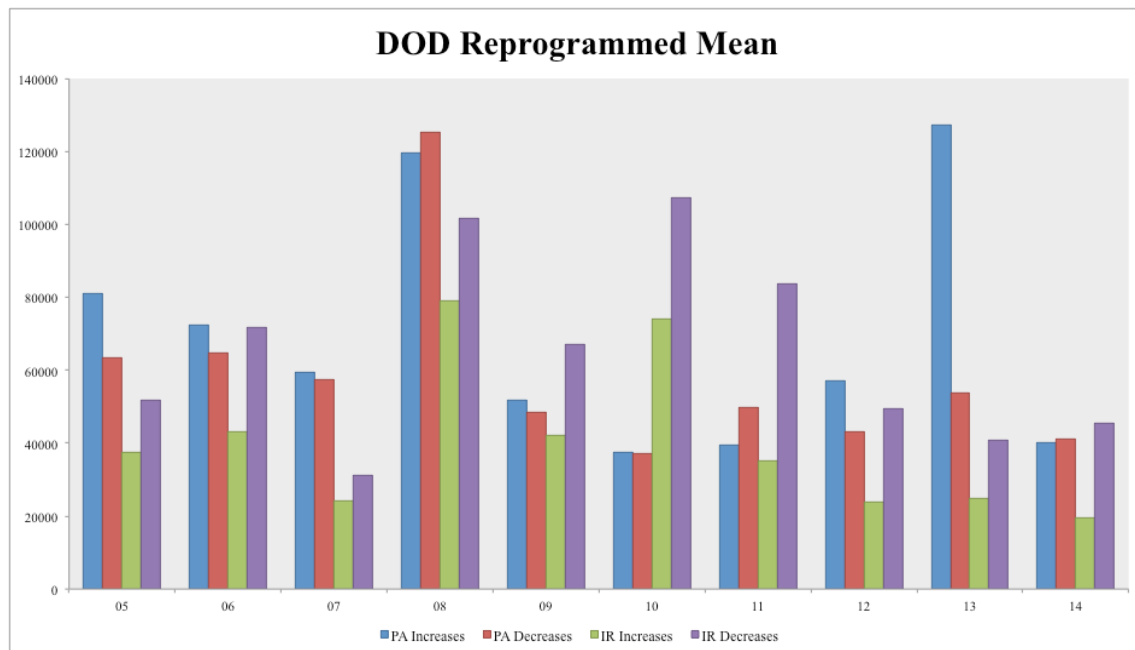


Figure 10. DOD Reprogrammed Mean (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

Once again the relatively high average levels of funding being moved from one program to another is evident in FY08 and FY10. Additionally the mean outlier represented in FY13 for PA increases equals just above \$130 billion. Overall the average reprogramming levels vary from fiscal year to fiscal year. The 10-year average in real

dollars equates to approximately \$58 billion, which includes both increases and decreases, and PA and IR averages. Separately, PA increases equal an average of \$68 billion, PA decreases equate to \$58.4 billion, IR increases average \$40.4 billion, and IR decrease average calculated \$65 billion.

The coefficient of variation (CV) measures the relative size of dispersion from the mean. The CV for DOD is presented in Figure 11, which is a bar graph showcasing the DOD's CV for reprogramming over the course of the past decade. The information is split by fiscal year on the horizontal axis with CV on the vertical axis. In the case of constant (real) versus current (nominal) the CV is not affected. The data is further broken down into prior approval, internal reprogramming, along with representative increases and decreases.

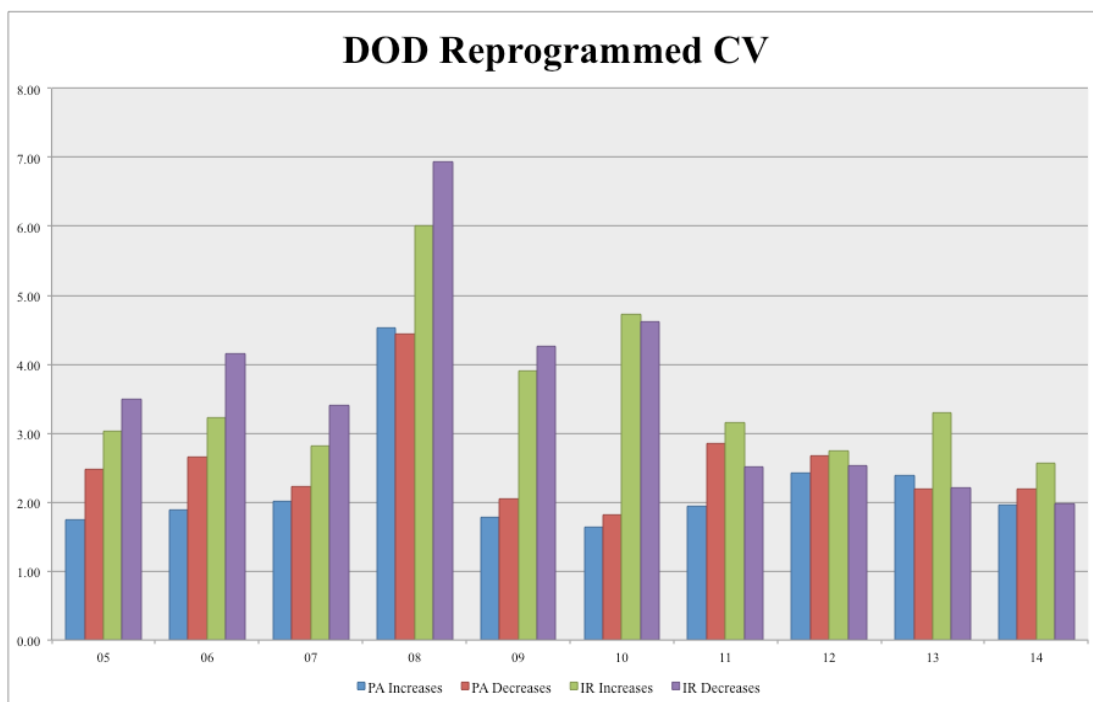


Figure 11. DOD Coefficient of Variation (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

Observing FY 08, the CV is high for all actions indicating large dispersion from the mean for all actions. Over the time period, the CV for PA increases is fairly constant

while the CV for IR decreases remained about 4.00 until FY 11 when it stabilized at about 2.00. After FY 10 the CV seems to stabilize for all reprogramming actions.

5. Change in Congressional Base

The change in the congressionally approved budget authority (base) relative to reprogramming in the respective FY provides further consistent information of a downward trend. An analysis of total reprogramming compared to the total budget authority could possibly provide a deeper aspect into the relative percentage of funding shifted within the DOD. Displayed in Figure 12, are the relative percentages of reprogramming by total budget authority (BA). Data is provided in both IR and PA giving their respective portion of the BA that is reprogrammed. For example, in FY 05, there were a total of \$8.7 billion in PA increases reprogrammed. Given a total DOD budget authority of \$483.8 billion, 1.8 percent of the DOD budget authority is reprogrammed under the category of prior approval in increases. Once we include the IR portion of reprogramming at 3.2 percent, the two PA and IR percentages are totaled receiving a total of 5.01 percent, implying that roughly 5 percent of the FY 05 budget was reprogrammed.

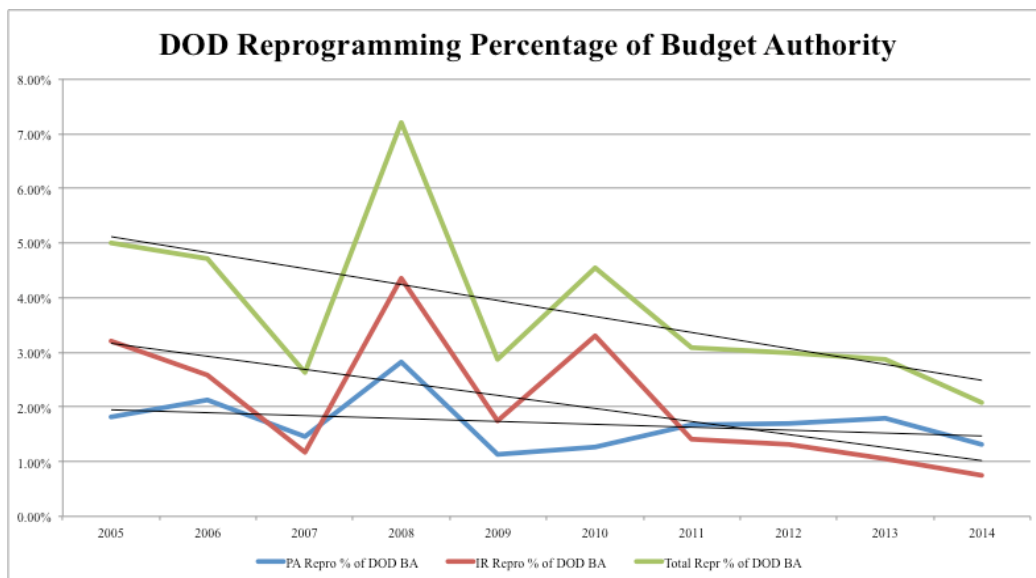


Figure 12. DOD Reprogramming Percentages of BA (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014a and b)

For a period in FY 05 to 06 and beginning again in FY 08 to FY 11 IR reprogramming exceeded PA reprogrammed funding. Overall, the average percentage of the BA reprogrammed under PA was calculated at 1.71 percent and IR calculated to 2.1 percent. When combined within the time frame of 10 years, 3.8 percent of the total BA was reprogrammed, leaving 96.2 intact. It can then be stated that on average, DOD achieved a relatively successful budget and properly anticipated future events, given that less than 4 percent was reprogrammed over the time period.

6. DOD Frequency

To this point thus far we have analyzed reprogramming based only on the fiscal year. The frequency at which the DOD submits necessary reprogramming actions is a fundamental question that needs to be answered as timing may indeed lead to gathering necessary relevancies, which may be associated to possible key budgetary schedules and/or legislative and executive activities. It may also reveal distinctive occurrences across the DOD, other than usual budget execution occurring throughout the fiscal year, and the normal PPBE process for budget years that lay ahead.

Typically, prior to the beginning of the first quarter of a fiscal year, Congress attempts to pass defense appropriations in the form of the regular appropriations process or through continuing resolutions until Congress and the President can agree on how to appropriately fund the defense of the nation. The continuing resolutions process allows the government to spend at the previous year levels or at specified levels. Often continuing resolutions run into the following quarter.

Approximately halfway through the second quarter, January to March, the President is scheduled to submit his budget proposal for the upcoming fiscal year, primarily by the first Monday in February. Additionally, starting at the end of March and into the third quarter the executive branches mid-session review, also referred to as the midyear review, of the budget under execution is executed halfway through the execution of a budget year. This process provides an update to the current status of the existing fiscal year's budget execution path, and if that path follows how it was originally planned and programmed, thus providing an opportunity to adjust where necessary. However, the

formal midyear review process is not the only review process in use. An additional informal process termed the triennial review process allows for other activities to review and analyze current budget execution. Through both review processes and along with continual reviews not on a typical schedule, obligation and expenditure rates can be assessed and adjusted as necessary. As the fiscal year draws to a close in the fourth quarter year-end closeout consumes almost every organization. During the final quarter obligation rates are ensured they meet planned rates and one-year appropriations are closed out if not adjusted and possibly extended (Potvin, 2011). Figure 13 provides the detailed comparison by quarter of actions, transactions and dollar value.

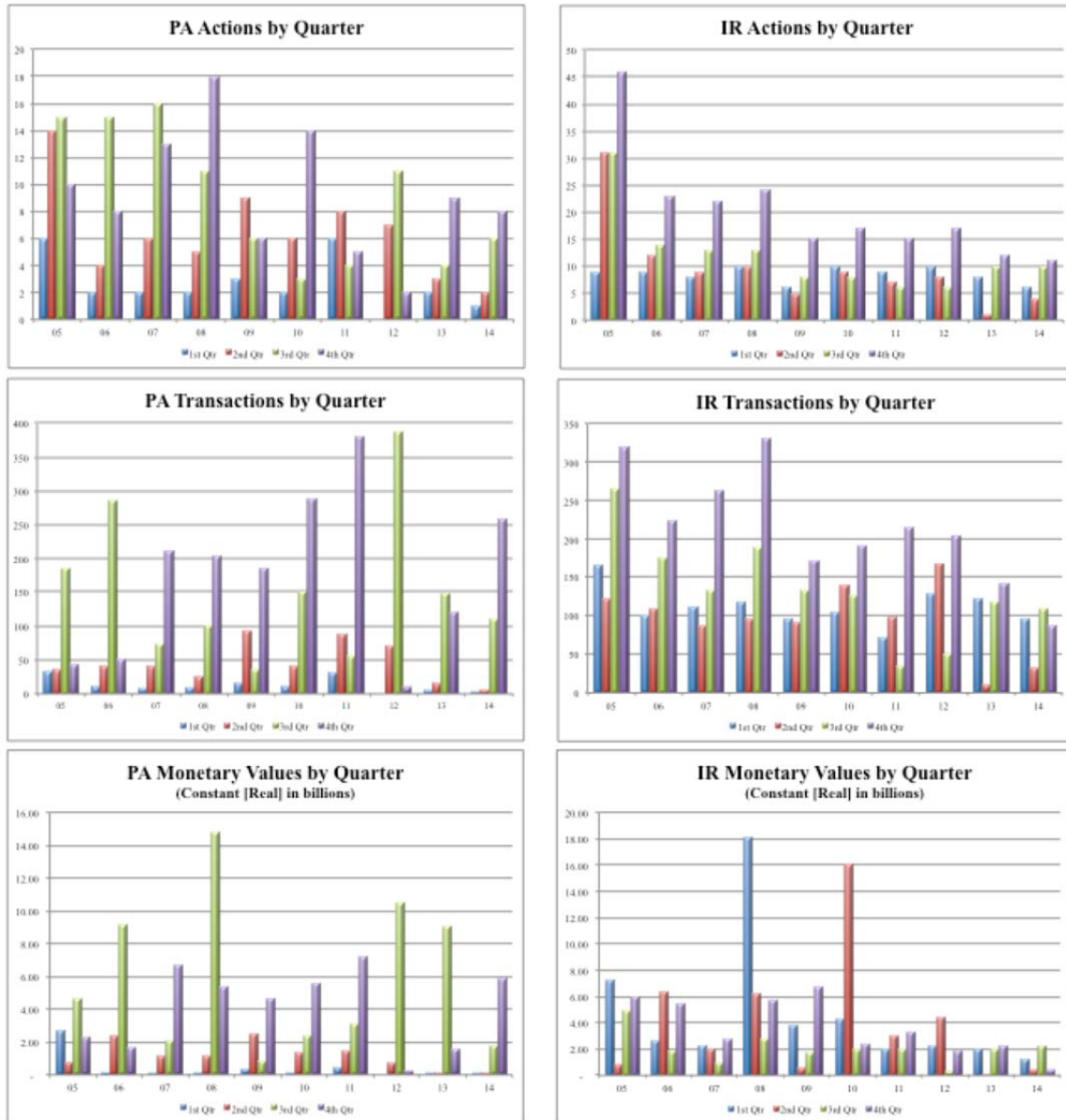


Figure 13. DOD Reprogramming Frequency (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

In the case of frequency prior approval and internal reprogramming data was again manipulated and categorized quarterly by each fiscal year. In order to view their comparisons or dissimilarities actions, transactions and current (real) FY14 total DOD dollar values are displayed. Labeling of quarters begins as follows: first quarter in blue, second quarter in red, third quarter in green, and fourth quarter in purple.

The charts confirm that actions and transactions with both PA and IR trend upward from a low in quarters one through high in the fourth quarters. First quarter levels gain little movement, second quarter is fairly constant, while the third quarters over the fiscal years are substantially erratic, and fourth quarter is also unstable but with overall greater levels. Quarterly PA dollar values also trend upward from lows in the first quarter to high in the third quarter. Alternatively, real IR dollar values stay moderately equivalent throughout the quarters while spikes occur in the first quarter of FY 2008 and second quarter 2010. Thus, the data exhibited in the graphs noticeably conveys tendencies for reprogramming to see elevated levels in the third and fourth quarters, possibly related to the mid-year review processes and year-end close out.

7. DOD Overall Reprogramming

An analysis of the DOD would not be complete unless we can have a conceptual grasp of the aspect into the component services from which the DOD is comprised. However, the information into a difference in services is limited in order to stay within the lateral limits of exclusively Marine Corps effectiveness. Figure 14 presents the individual service reprogramming by fiscal year in the horizontal axis and dollar values on the vertical axis. Fiscal year 08 is unmistakable high with the Army reprogramming \$28 billion, nearly three times the amount of the next highest in service reprogramming.

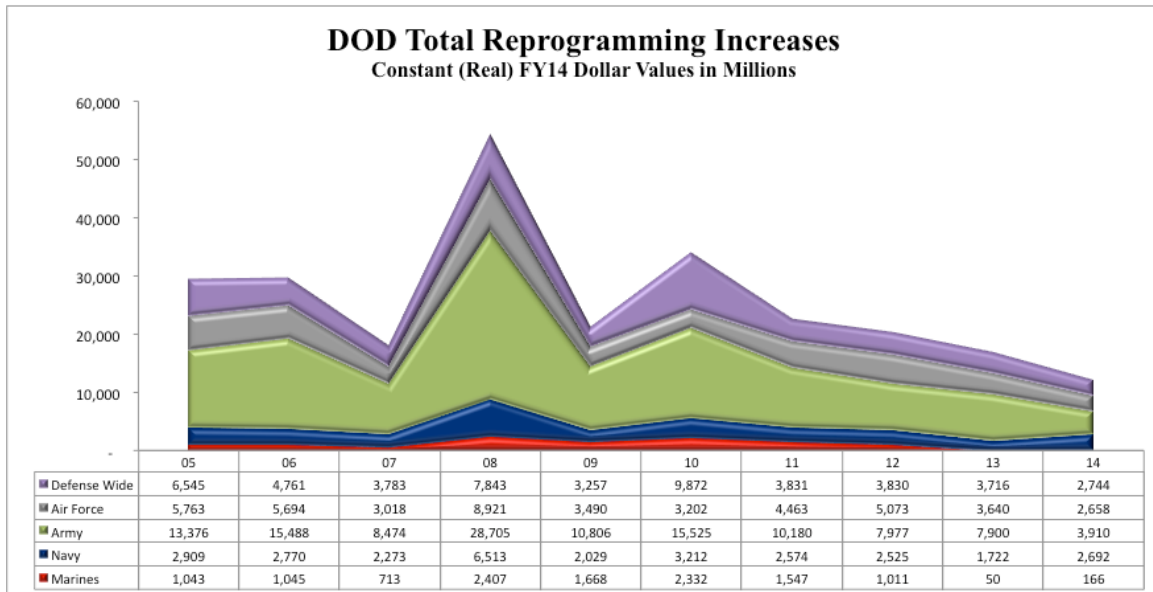


Figure 14. Total DOD Reprogramming Increases by Service (after Rouse 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

Figure 15 asserts the DOD's performance in reprogramming displaying the overall 10-year reprogramming performance by service, calculated from the previous set of data. As revealed the Army's portion of reprogramming within the DOD is nearly half at an average of just over an average 47 percent. The Army is followed loosely by defense-wide at just over an average 19 percent on adjustments and closely followed by the Air Force at nearly on average 18 percent. The Navy at an average just over 11 percent and the Marine Corps encircle the backend of the DOD portion of reprogramming with the Marine Corps reprogramming only an average 4.6 percent of the total DOD reprogrammed dollars. In this case there is not a separable distinction of a downward trend as previously evaluated in other sections of this chapter.

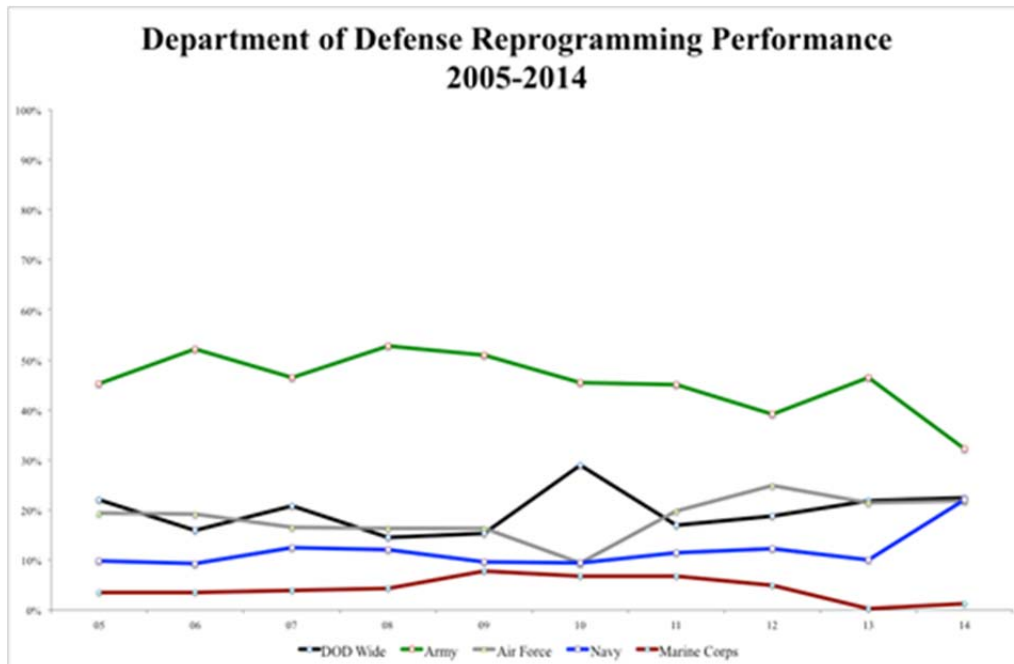


Figure 15. DOD Reprogramming Performance (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

C. MARINE CORPS REPROGRAMMING ANALYSIS

Now that an analysis of the DOD has been offered, a deeper view into the details of Marine Corps reprogramming will now be presented.

1. Marine Corps Reprogramming

Referring exclusively to the years from 2005 through 2014 the Marine Corps has nearly \$10.83 billion dollars (calculated nominally) in reprogramming of the five major appropriations controlled by the Marine Corps. A total that is relevant to only 4.6 percent, on average, of the total DOD funding reprogrammed. Total transactions are 494 transactions. Figure 16 provides a breakdown of those 494 Marine Corps reprogramming transactions while providing both internal and prior approval reprogramming. On average, transactions were roughly 50 per FY.

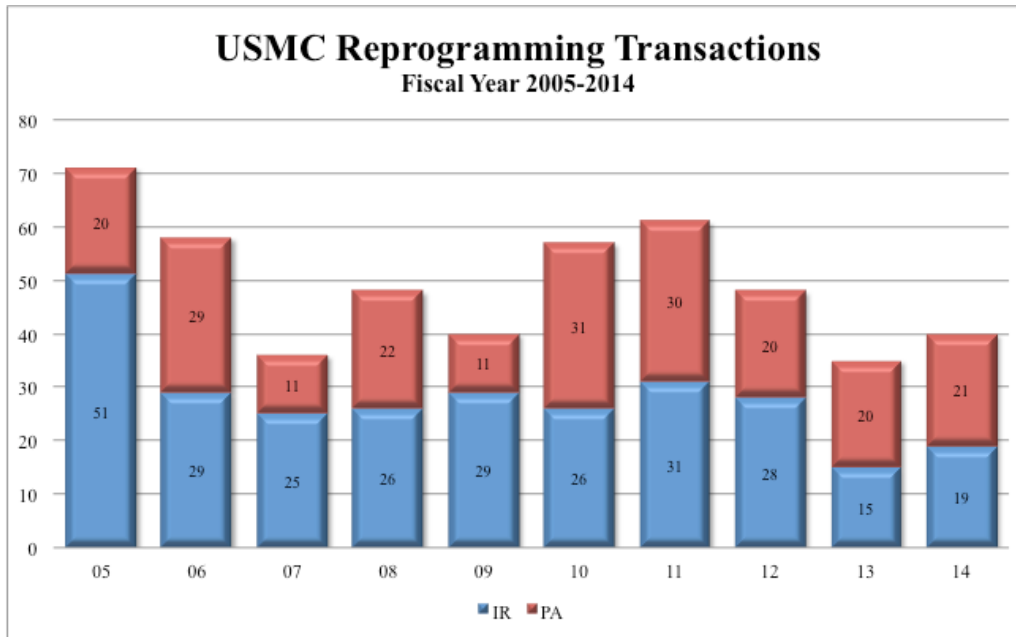


Figure 16. Marine Corps Reprogramming Transactions (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

While fiscal year average reprogramming transactions for PA and IR's were 21.5 and 27.9, respectively, overall reprogramming rose and fell over the decade with a slight downward trend. A specific low occurred most recently in FY13 decreasing to only an overall of 35; PA's totaling 20 and IR's totaling 15. FY 05 was the highest in reprogramming transactions with 71; PA's totaling 20 and IR's totaling 51. It is evident that while internal reprogramming transactions are decreasing prior approval transactions were increasing only slightly in the most recent fiscal years. The insignificant number of Marine Corps transactions occurring within submitted DOD actions to congressional service committees rounded up to an average of one transaction per DOD action for both PA and IR.

The financial significance reprogramming plays in the Navy and Marine Corps is portrayed in Figure 17. The figure lists both the Navy and Marine Corps reprogrammed dollar values in real (constant) values in FY14 base year in millions. Fiscal years were filtered by the two services and their respective columns of increases summed to a total value.

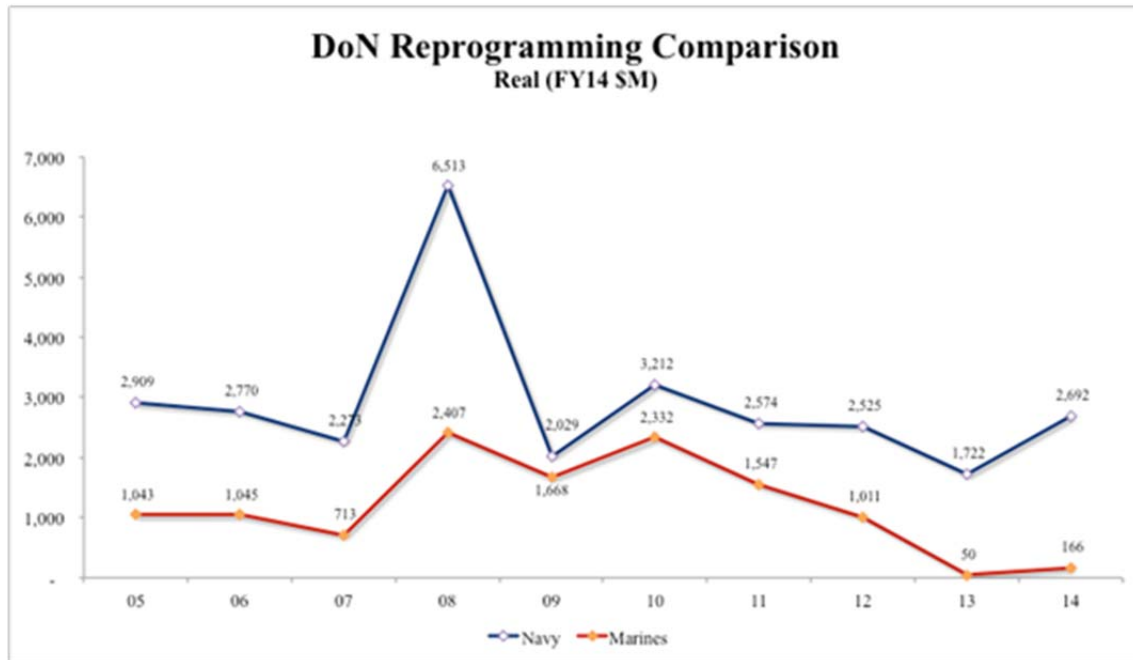


Figure 17. Department of the Navy Reprogrammed Dollar Values (after Rouse 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

Marine Corps reprogrammed real dollars are on a downward trend and follow the path of the Navy's reprogramming. As shown in the figure, Marine Corps reprogramming totals for the time period is \$10.8 billion, while the Navy's reprogrammed dollars cover a total of \$29.2 billion.

2. Reprogrammed Appropriations

To assess reprogramming at the individual appropriation level, two separate charts of Marine Corps appropriations in real FY14 dollars are shown in Table 10. These five appropriations represent roughly 99 percent of appropriations that are reprogrammed. The five appropriations are then graphed. Each graph signifies both reprogramming increases and decreases; demonstrating the relative averages for increases (solid line) and decreases (broken line) of each appropriation. Each line represents the combination of both PA and IR actions/transactions. Unlike the DOD, Marine Corps reprogramming will be more prone to be represented in this manner due to the minimal fiscal year transactions submitted by or on behalf of the Marine Corps. For each appropriation particulars and above the mean values are listed below in detail.

Table 10. Marine Corps Reprogrammed Values by Major Appropriation
(after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

Increases											
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
MILPERS	792.6	548.8	.2	67.8	63.3	184.7	275.3	108.7	11.2	97.9	2,150.4
MILPERS Reserve	3.5	9.2	1.6	1.1	42.1	1.9	37.6	14.8	28.4	35.5	175.9
O&M	83.1	348.2	12.1	490.0	427.1	644.9	819.1	716.0	9.8	13.8	3,563.0
O&M Reserve	8.9	.9	.1	24.8	.1	.2	.3	.4	.2	.185	36.1
Procurement	478.2	138.1	699.4	1,823.5	1,136	1,500.4	414.6	171.1	-	18.6	6,379.8
Appn Total	1,366.3	1,045.2	713.5	2,407.1	1,668.5	2,332.1	1,546.0	1,011.0	49.5	165.9	12,306.3

Decreases											
MILPERS	731.3	394.8	-	170.3	40.1	127.3	126.6	173.1	209.7	72.6	2,045.7
MILPERS Reserve	40.2	6.6	7.6	-	-	-	10.7	.6	.006	.21	65.9
O&M	155.7	456.7	76.7	138.8	36.6	114.0	225.8	4.6	230.8	125.2	1,564.8
O&M Reserve	23.1	3.9	3.8	-	2.9	1.8	1.1	.1	54.9	-	91.6
Procurement	49.1	329.1	688.0	409.4	217.9	77.4	5.6	-	23.4	53	1,852.9
Appn Total	999.4	1191.1	776.1	718.4	297.5	320.5	369.7	178.4	518.8	251	5,621.0

Constant (Real) Values in Millions

a. Military Personnel Marine Corps

Following high levels in both FY 05 and 06 Figure 18 displays relatively average increase and decreases over the years examined. Mean increases held at \$183 million, below the relative average level of decreases at \$237 million, a difference of approximately \$54 million.

In FY 05 the Marine Corps submitted reprogramming action PA 5-05 increasing MILPERS for \$264 million. The purpose was submitted as required to meet near term force protection and war related requirements. Funds within the MILPERS account affected only pay and allowances enlisted. The Marine Corps also indicates that funds must be returned within the third or fourth quarter and were returned in PA action FY 05-35. Fluctuations in decreases of MILPERS in FY 05 were caused by transfers related to expired unobligated funds a basic repurposing (FY 05-111 IR, OUSD [C], 2005) and in most cases relative to their respective increase.

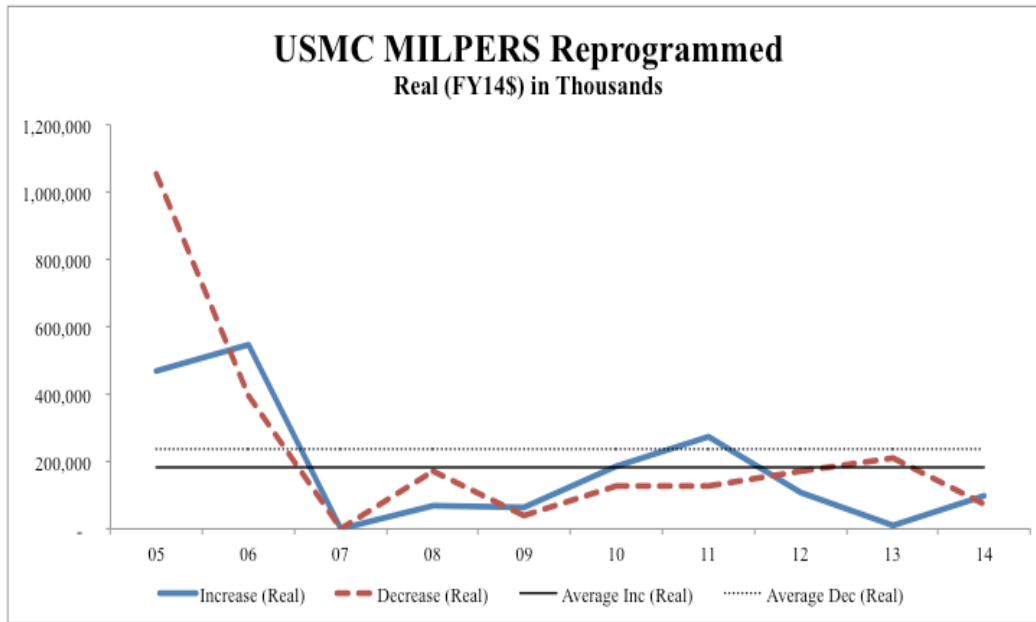


Figure 18. USMC MILPERS Reprogramming (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

While fiscal year 2006 had levels above the 10-year average for MILPERS, no particular reprogramming transaction(s) in either increases or decreases stood out among the majority. FY 2006 MILPERS transactions were predominately funding level realignments.

In FY 11 DOD submitted an Omnibus PA action increasing and decreasing various appropriations. The Marine Corps stipulates assorted increases in MILPERS are due to unanticipated low attrition rates, and improvement in operational tempo. Higher than anticipated officer and enlisted personnel remaining in the service longer than expected requiring increases in MILPERS appropriation. A fragment of the decreases, which funded the increases in MILPERS, came directly from enlisted subsistence due to unexpected increased mess hall collections and also from decreasing mess hall contracts (FY 11-21R PA, OUSD [C], 2011).

b. Reserve Personnel Marine Corps

MILPERS reserves are displayed in Figure 19. The MILPERS reserve averages in reprogrammed increases were \$17.5 million, which were above the relative mean decreases of \$6.6 million, a difference of nearly \$11 million.

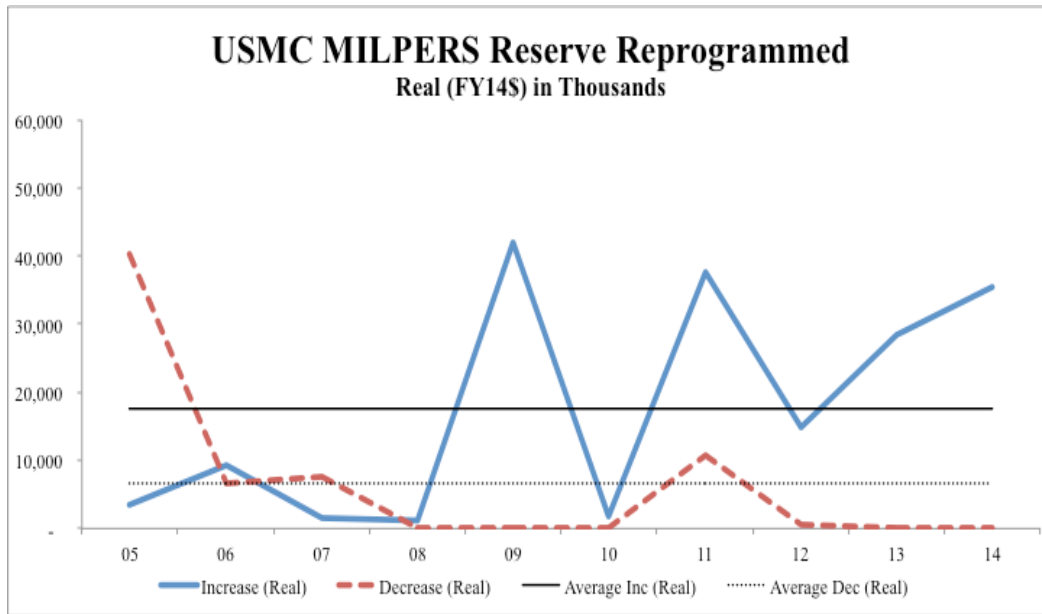


Figure 19. USMC MILPERS Reserve Reprogramming (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

FY 2005 higher than average reprogrammed decrease was proportionately the result of an OIF deployment of reserve personnel. Funding was originally budgeted for reserve annual training and temporary additional duty purposes. Funds became available because no personnel were present (FY 05-38 PA, OUSD [C], 2005). The spike in FY 2009 reprogrammed increases were primarily the result of one \$36 million dollar transaction resulting from the improper reserve manpower projections in grade structure and end-strength (FY 09-29 PA, OUSD [C], 2009). The same underestimated reserve manpower in FY 2009 occurred again in fiscal years 2011, 2013, and 2014 however in different amounts (FY 11-21-R PA, OUSD [C], 2011), (FY 13-18 PA, OUSD [C], 2013), (FY 14-11 PA, OUSD [C], 2014).

c. Procurement Marine Corps

The procurement graph in Figure 20 displays significant elevation in increase beginning in 2007 and falling to a level below the mean in 2011. Mean levels in increases held at \$638 million, while relative mean levels for decreases were calculated at \$185 million, a difference of approximately \$453 million.

In March of 2007 DON submitted PA 07-08 for the procurement of 244 MRAPs for \$427.9 million. This included \$415.8 million in procurement Marine Corps and \$12.1 million in RDT&E Navy dollars. That same FY, DOD's Global War on Terrorism (GWOT) supplemental request, as it became known, included \$427.9 million for the procurement for the same 244 mine resistant ambush vehicles (MRAP). The reprogramming action was submitted ahead of the Navy's submission of the FY 07 GWOT supplemental request, a short-term solution, to guarantee funding was in place in order for the program to begin concurrently with congressional pressures. Also in the short term the Marine Corps would reduce funding in the following procurement programs: amphibious assault vehicle (AAVP7A1), product improvement program (PIP), blue force tracker (BFT), radio systems, high mobility multipurpose wheeled vehicle (HMMWV), medium tactical vehicle replacement (MTVR), and engineering equipment. Once funding was approved in the GWOT supplemental the Marine Corps would then submit another reprogramming action to return the funds to the six procurement programs (FY 07-08 PA). However no future reprogramming indicate funds were returned.

The highest levels in procurement increases came in 2008, leading from DODs submission of \$5.2 billion in reprogramming actions in order to continue the procurement of the MRAP program. Of the \$5.2 billion, the Marine Corps would submit for \$1.4 billion in procurement dollars for the continued production, spares and contractor maintenance support for the MRAP. The funding would entirely originate from the Mine Resistant Ambush Protected Fund controlled by the MRAP Joint Program Office (FY 08-02 IR, OUSD [C], 2008).

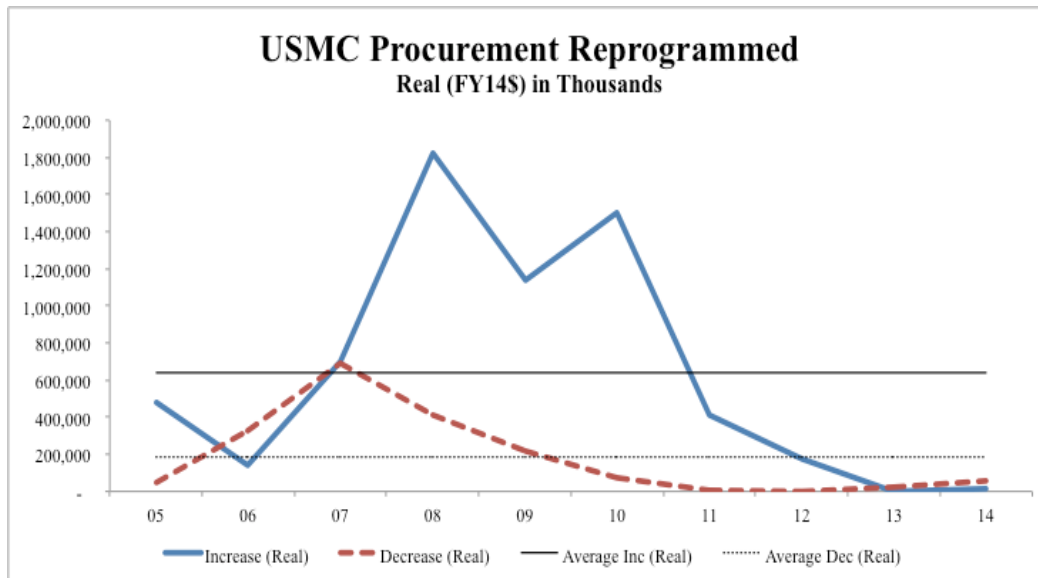


Figure 20. USMC Procurement Reprogramming (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

Increases in 2009 fell roughly \$600 million principally from DODs submission of \$3.0 billion in reprogramming actions in order to continue the procurement of the MRAP program. Of the \$3.0 billion, the Marine Corps would submit for just over \$1 billion for the procurement of MRAP all-terrain vehicle (MATV) furnished with improvised explosive devices (IED) jammers. The funding would entirely originate from the Mine Resistant Ambush Protected Fund (FY 09-20 IR, OUSD [C], 2009).

In 2010 DOD submitted \$1.7 billion in reprogramming actions in order to continue the procurement of the MRAP program. Of the \$1.7 billion, the Marine Corps would submit for \$417 million in procurement dollars for the MRAP (FY 10-07 IR, OUSD [C], 2010). Later in the same fiscal year the Marine Corps would submit for an additionally \$692 million in procurement dollars related to the MATV (FY 10-11 IR, OUSD [C], 2010). The funding would entirely originate from the Mine Resistant Ambush Protected Fund.

d. Operations and Maintenance, Marine Corps

The O&M chart, Figure 21, presents major fluctuations in reprogramming increases rising steadily from FY 2008 to 2011 with a slight decrease in FY 2009 and

again falling slightly in 2012. Decreases were not representative of their relative increases through the years analyzed. FY 2006 reprogramming decreases rose just above the average however; these mostly consisted of transactions realigning funds. Averages calculated over the 10 years totaled \$356 million for increases and decreases at \$162 million, a difference of approximately \$194.4 million.

In FY 08 the Marine Corps, along with the rest of the services, submitted an IR action to increase O&M by \$135 million due to the procurement of MRAPs, which included funding for items such as training, storage, and repairs for the MRAP (FY 08-02 IR, OUSD [C], 2008). In addition, \$169 million in O&M would be increased to fund the airlift of MRAPs into OEF and OIF (FY 08-10 IR, OUSD [C], 2008). Furthermore, another \$120 million would be shifted to support the MRAP (FY 08-27 IR, OUSD [C], 2008). Both IR funding would entirely originate from the Mine Resistant Ambush Protected Fund.

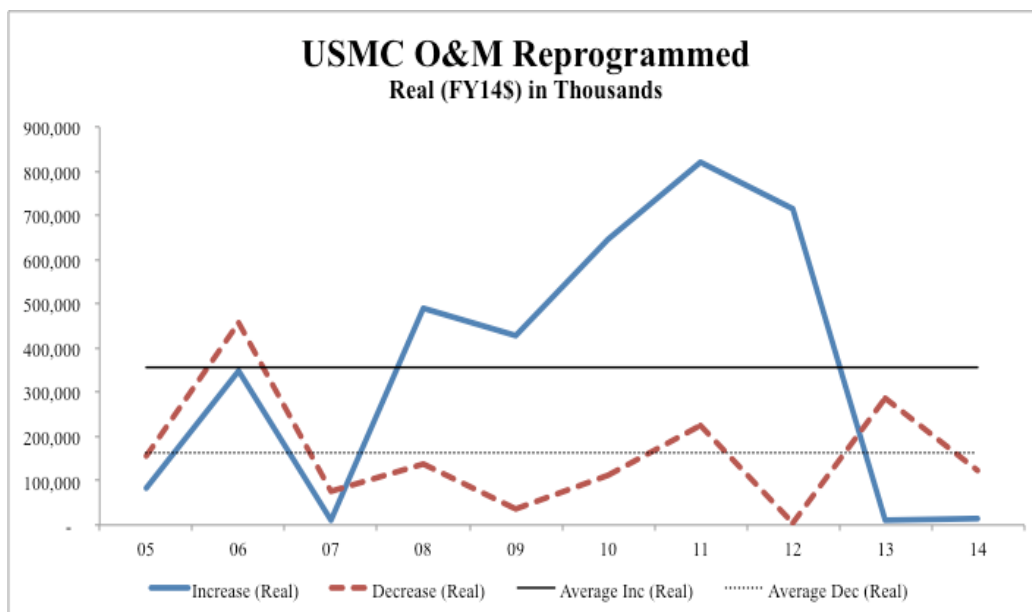


Figure 21. USMC Operations and Maintenance Reprogramming (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

In FY 09 the Marine Corps, along with the rest of the services, submitted an IR action to also increase O&M by \$150 million in O&M due to the procurement of

MRAPs, which included the funding for the training, storage, and repairs of newly procured MRAPs (FY 09-01 IR, OUSD [C], 2009). Also due to the MRAP, an additional \$158 million in O&M would be reprogrammed for the same reasons as in FY 08 (FY 09-14 IR, OUSD [C], 2009). Both the IR funding would entirely originate from the Mine Resistant Ambush Protected Fund.

Related to the newly procured MRAP program, the DOD would submit more reprogramming increases in procurement dollars due to the MRAP with the MATV procurement in 2010 and the Marine Corps would reprogram \$423 million in O&M funds related to the MRAP/MATV (FY 10-11 IR, OUSD [C], 2010). The IR funding would, as in the past FY, entirely originate from the Mine Resistant Ambush Protected Fund.

In FY 11 the Marine Corps submitted both IR and PA reprogramming actions that adjusted O&M increasing to just over \$775 million. Within FY 11's PA-Omnibus the Marine Corps increased O&M funds \$150 million for the transportation and shipping of equipment and supplies in and out of Afghanistan (FY 11-21R PA, OUSD [C], 2011). Furthermore, due to the MRAP procurement an additional \$231 million in O&M would be increased for both OEF and OIF (FY 11-01 IR, OUSD [C], 2011). Additionally due to the MRAP procurement \$190 million in O&M would be increased for both OEF and OIF MRAP support and maintenance (FY 11-17 IR, OUSD [C], 2011). Both the IR funding would entirely originate from the Mine Resistant Ambush Protected Fund.

In FY 12 the Marine Corps submitted both IR and PA reprogramming actions that adjusted O&M increasing to just over \$691 million. Within the one of two of the FY 12 PA-Omnibus the Marine Corps increased O&M funds \$105 million. Originally submitted for \$140 million but eventually reduced OUSD(C) due to adjustments to balance to approved sources. Details in this Omnibus action would include (FY 12-18 PA, OUSD [C], 2012):

- \$65.0 million to enhance aviation operational readiness and sustainment.
- All \$23.0 million reduced, but was to support the Unit Deployment Program (UDP) into Australia as the Marine Corps increases engagement and training opportunities in the Pacific theater termed the "pivot to the pacific."

- Originally \$24 million but reduced to \$17 million to provide fielding and sustainment funding for existing Enterprise Land Mobile Radios.
- Originally \$13 million but reduced to \$7 million to fund labor, engineering, and land studies for the Okinawa and Iwakuni Strategic Management Master and Area Development Plans.

In FY 12, due to the MRAP procurement, an additional \$100 million and \$148 million in O&M would be increased for both OEF and OIF (respectively in FY 12-01 IR and FY 12-02 IR, OUSD [C], 2012). Additionally, due to the MRAP procurement, \$100 million and \$130 million in O&M would be increased for both OEF and OIF MRAP support and maintenance (FY 12-10 IR and FY 12-11 IR, OUSD [C], 2012). All MRAP related IR increases in funding would originate from the Mine Resistant Ambush Protected Fund.

In FY 13 the Marine Corps, along with the DOD, submitted a PA action to reduce funding of various appropriation accounts due to the decline of defense spending in Operation Enduring Freedom (OEF) due to lower spending rates relative to the redeployment of forces and retrograde of equipment from Afghanistan. For the Marine Corps it would reduce O&M by \$222 million (FY 13-09 PA, OUSD [C], 2013).

As an example of the uncontrollable external environment unrelated to national defense the DOD initiated an IR action in FY 13 to transfer various unobligated FY 11 funds. These funds were meant to replenish the Defense Foreign Currency Fluctuations to its statutory limits due to the decline of the value of the U.S. dollar compared to foreign currency exchange rates. In the case of the Marine Corps O&M decreased \$54 million in IR (FY 13-25 IR, OUSD [C], 2013). This type of IR action has relevance not only in FY 13 but also throughout every fiscal year in relation to U.S. dollar decline.

e. Operations and Maintenance, Marine Corps Reserve

O&M Reserve average increase and decrease levels were comparatively equivalent through the years examined, as exhibited in Figure 22. Increase average were equal to \$3.6 million, which were just below the relative mean level of decreases at \$3.67 million, a difference of approximately \$69 thousand. O&M reserve began to fall to

average levels following a slight rise in decreases in FY 05. This was the result of \$14 million in updates to estimates due to the GWOT (FY 05-38 PA, OUSD [C], 2005).

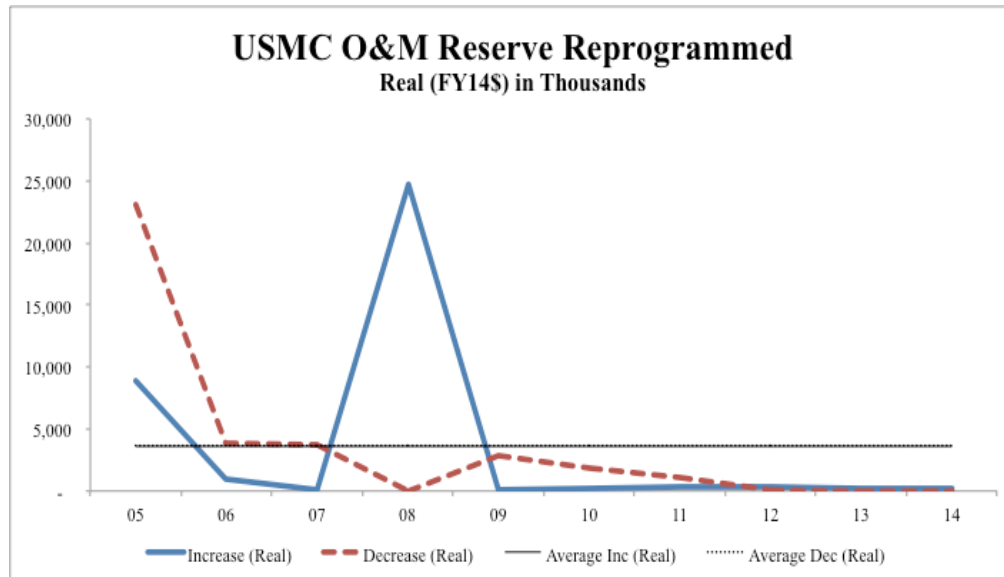


Figure 22. Marine Corps O&M Reserve Reprogramming (after Rouse 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

Fiscal year 08 fluctuation above the mean can be pinpointed to a requested increase of approximately \$33.7 million, however this was adjusted by OUSD (C) to approximately \$22 million, with no equivalent decrease(s). Funds in this case were required for restoration and modernization of facilities in order to attain a balance between active duty and reserves (FY 08-31 PA, OUSD [C], 2008).

f. Reprogrammed Appropriation Average

Figures 23 and 24 display the five major Marine Corps appropriations reprogrammed over the ten-year period studied. Values were calculated using the increase values in Figure 23 and decrease averages in Figure 24.

On average, procurement accounts for more than half of reprogrammed increases at 53 percent followed by O&M at 30 percent and MILPERS at 15 percent. Reserve appropriations have been typically low.

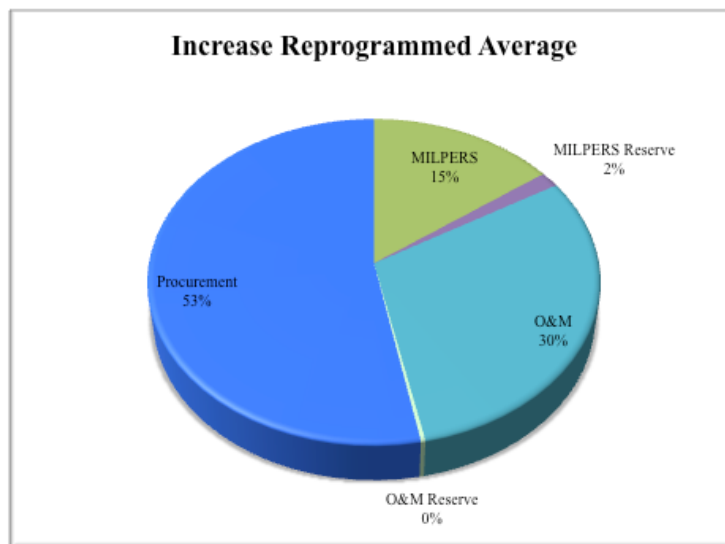


Figure 23. Marine Corps 10-Yr Average Increases (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

Conversely, when decreases are examined, on average, active MILPERS surpasses both procurement and O&M. Decreases are those funding values that were reduced in order to finance another commitment other than originally planned.

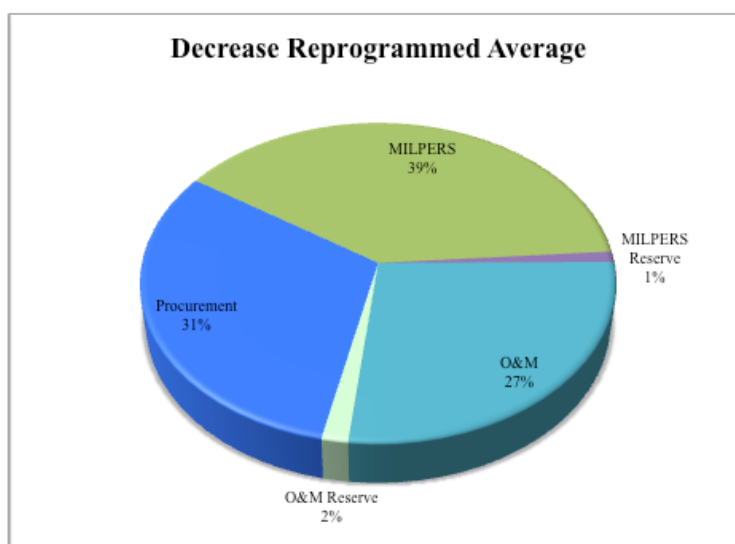


Figure 24. Marine Corps 10-Yr Average Decreases (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

To gain a better perspective in relation to reprogramming and budget authority, one more set of values will be required. Using Figure 3 in Chapter I, when we compare and contrast the averages of Marine Corps budget authority with reprogrammed dollars, varying results emerge. Table 11 lists the averages of the respective classifications.

Table 11. Comparative Averages of Budget Authority and Reprogramming
(after Roum 2007, OUSD[C], 2007-2011, 2012a, 2013, 2014a and b)

Appropriation	Budget Authority	Reprogrammed Increases	Reprogrammed Decreases
MILPERS	41%	15%	39%
O&M	29%	30%	27%
Procurement	14%	53%	31%
MILPERS R	2%	2%	1%
O&M R	1%	0.6%	2%

The top three major active duty appropriations of procurement, O&M, and MILPERS will be compared and contrasted due to both reserve appropriations stable and insignificant proportion. With respect to the average budget authority over the time period, the primary appropriation budgeted for within the Marine Corps was active duty MILPERS, and also sourced nearly 40 percent of reprogrammed requirement. However, over ten years covered, procurement requires a majority of additional funding via reprogramming, while only 14 percent of the average budget is allocated to procurement. Active duty MILPERS, the major appropriation sourcing a majority of the requirement is the predominantly budgeted appropriation, on average.

3. Marine Corps Reprogramming Statistics

Similar to the defense department reprogramming descriptive statistics, the Marine Corps descriptive statistics are presented by fiscal year. Both sets of descriptive statistics (increases and decreases) include the values for PA and IR transactions. Each set of descriptive statistics contain the number of increase or decrease transactions (observations), minimum, first quartile, median, third quartile, maximum, interquartile,

range, mean, standard deviation, coefficient of variation, and total dollar value. The reason for an alternate presentation of the data was due to the Marine Corps total reprogramming figures once analyzed, in most cases the limited amount of Marine Corps reprogramming produced insignificant statistical results. This data can be found in Table 12, however certain portions of data are provided further in order for them to be fully displayed and examined. Unless otherwise noted, data has been presented in current (nominal) values with all dollar values in thousands.

Table 12. Marine Corps Reprogramming Statistics (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

USMC Reprogramming 2005 – 2014										
Current (Nominal) Dollar Values in Thousands										
Increases										
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Transaction Quantity	40	35	16	25	28	37	49	34	16	22
Min	28	79	10	15	0	0	0	0	0	12
1 st Quartile	1,600	590	111	1,000	457	218	750	487	96	204
Median	4,780	3,950	1,278	8,048	4,694	12,900	10,000	9,597	489	1,014
3 rd Quartile	20,026	15,667	7,369	35,440	15,232	40,000	30,000	31,363	2,800	16,146
Max	241,700	250,000	415,800	1,415,000	1,023,000	692,000	231,000	148,000	18,200	29,411
Inter Quartile	18,426	15,077	7,258	34,440	14,775	39,782	29,250	30,876	2,704	15,942
Range	241,672	249,921	415,790	1,414,985	1,023,000	692,000	231,000	148,000	18,200	29,399
μ = Mean	21,352	25,233	38,670	85,964	53,928	58,462	29,881	28,669	3,047	7,544
σ = Std Dev	43,492	59,012	106,232	280,542	193,282	139,572	50,904	40,831	5,223	10,295
CV = σ/μ	2.04	2.34	2.75	3.26	3.58	2.39	1.7	1.42	1.71	1.36
Total Value Increases	854,097	883,162	618,723	2,149,103	1,509,974	2,163,078	1,464,174	974,734	48,746	165,972
Decreases										
Transaction Quantity	31	23	20	23	12	20	12	14	21	18
Min	0	100	40	53	2,600	0	101	141	0	0
1 st Quartile	3,200	1,953	1,900	7,062	6,316	1,313	1,225	2,300	3,000	5,405
Median	14,000	14,634	9,600	14,400	18,169	8,350	7,000	12,905	6,400	8,757
3 rd Quartile	23,361	39,574	22,675	30,000	31,525	18,175	30,750	20,000	28,000	15,662
Max	264,595	250,000	205,800	133,000	60,433	75,000	186,754	26,710	222,000	93,700
Inter Quartile	20,161	37,621	20,775	22,938	25,209	16,862	29,525	17,770	25,000	10,257
Range	264,595	249,900	205,760	132,947	57,833	75,000	186,653	26,569	222,000	93,700
μ = Mean	34,931	43,763	33,662	27,891	22,435	14,870	29,163	12,288	24,295	13,946
σ = Std Dev	64,827	74,160	61,246	34,469	19,469	20,779	62,900	10,245	48,792	21,200
CV = σ/μ	1.86	1.69	1.82	1.24	0.87	1.4	2.16	0.83	2.01	1.52
Total Value Decreases	1,082,853	1,006,546	673,236	641,484	269,224	297,404	349,955	172,030	510,204	251,036
FY Variation	228,756	123,384	54,513	1,507,619	1,240,750	1,865,674	1,114,219	802,704	461,458	85,064
* PA and IR Combined										

Figure 25 demonstrates the Marine Corps' average reprogramming dollar values over the course of the decade. The information is split by fiscal year on the horizontal axis and real dollar values in millions on the vertical axis. The data is further broken down into total increases and total decreases each including both prior approval and internal reprogramming.

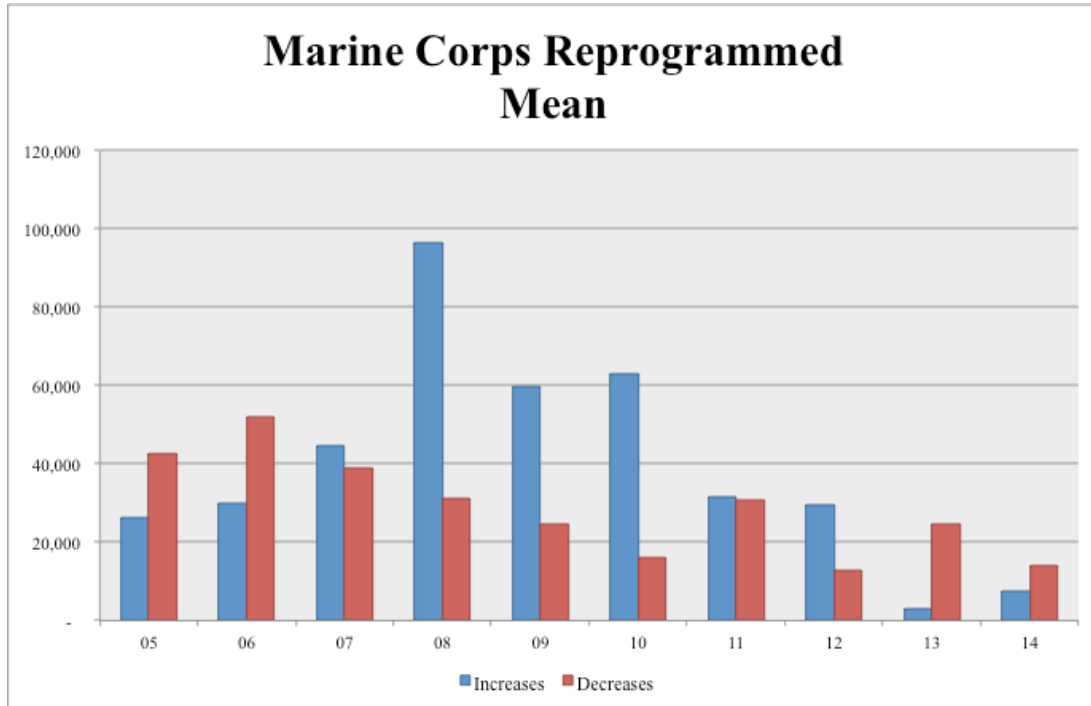


Figure 25. USMC Reprogrammed Mean (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

The relatively high average levels of funding increases are evident in FY 08 through FY 10. This result is more than likely due to the procurement of the MRAP and MATV. The overall Marine Corps 10-year average in real dollars equates to \$33.95 million, which includes both increases and decreases. The difference in the high and low mean for increases equals nearly \$93.2 million and represented by the increases in FY 08 with a low in FY 13, revealing a relatively unstable reprogramming average associated with FY 08 through FY 10. Similarly the difference in the high and low mean for decreases equals nearly \$39.1 million.

The CVs for the Marine Corps are presented in Figure 26. The graph displays the fiscal year on the horizontal axis with CV on the vertical axis.

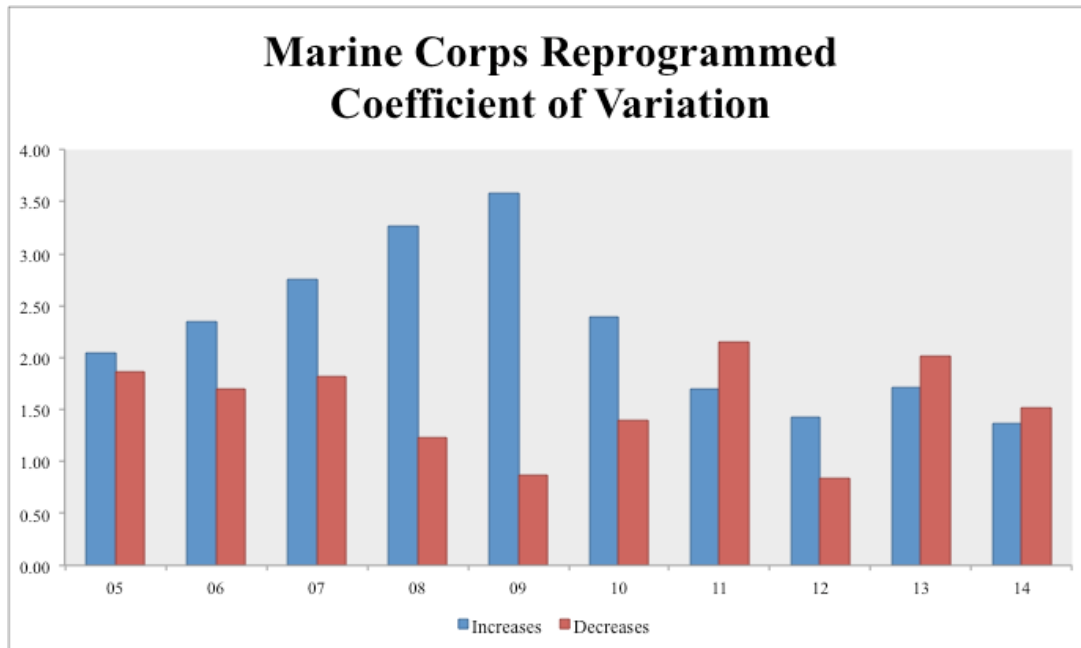


Figure 26. USMC Reprogrammed CV (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

Most notably are the increases over decreases and the upward trend in increases in CV from a low in FY05 of 2.04 to a high in FY09 of 3.58 and then descends to a rather stable level of dispersion in the remaining FYs. Overall the graph indicates a low dispersion, also stated as a low standard deviation from the mean.

Reprogrammed decreases show CV levels that are more stable than increases. Over the time period the Marine Corps requested increase(s) in funding and decreased their own controlled major appropriations. Occasionally, the Marine Corps submitted increases with funding originating from either the Navy or from DOD controlled transfer accounts. This is not to state that this does not occur with the other services, nonetheless due to the Marine Corps share in DOD reprogramming this sort of funding origination is more evident. Finally, Figure 27 presents a correlation of DOD to Marine Corps reprogramming. Through FY 12, DOD and Marine Corps reprogramming behave

similarly. After FY 12 the correlation reverses with DOD reprogramming fairly constant while the Marine Corps reprogramming falls.

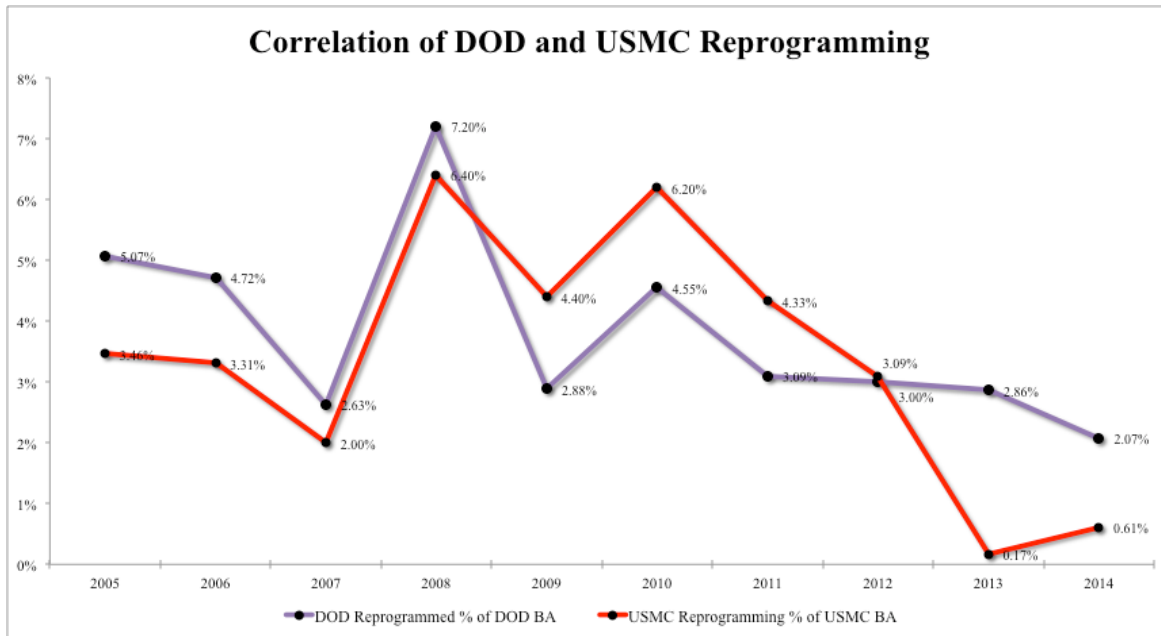


Figure 27. Correlation of DOD and USMC BA (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

The downward trend conceivably indicates increased effectiveness in defense budget execution due to improvements and adjustments to the PPBE system over the recent decade.

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V. CONCLUSION

A. SUMMARY

Reprogramming is the process of modifying appropriated funds from their formerly budgeted purpose. It results from the unplanned and unforeseen events such as war and conflicts, natural disasters, adjustments in cost estimations, and adjustments in priorities. The ability to shift funds provides for the flexibility to revise current programs to be effective and better suited for higher priority occurrences. Reprogramming effectiveness can only be determined by a comprehensive examination of the data. Effectiveness would then conceivably be associated to decreased variability in dispersion.

This thesis primary task was to understand the effectiveness of specifically the United States Marine Corps execution of reprogramming. This thesis encompassed a review of the past ten years (2005 to 2014) of Department of Defense (DOD) reprogramming eventually narrowing down to the Marine Corps. Comparisons were employed exercising both qualitative and quantitative approaches. Quantitative methods included descriptive statistics through the measures of central tendency, along with measures of dispersion, and frequency distributions.

To answer the research questions, the thesis provided various themes. To address the research question, a literature review involving reprogramming over the past decades was accomplished. This was followed by the methods for quantitative and qualitative analysis. A succinct explanation of how the data was gathered and organized, along with a brief look into some of the possible reasons reprogramming occurs.

The thesis continued first with a look into the DOD reprogramming performance and it was apparent that while internal reprogramming transactions decreased, prior approval transactions are increasing over the time period. It is unmistakable that reprogrammed real dollars are on a downward trend. On average, DOD PA and IR values total \$11.6 and \$14.4 billion, respectively, per fiscal year.

Over the course of analyzing the details of every reprogramming transaction in the ten-year span, patterns or trends emerged and were analyzed. DOD typically

submitted one compiled monthly action consisting of numerous transactions affecting all services. However, other types of actions followed and filled the void in places where normal action submissions were not appropriate. The patterns of reprogramming action types consisted of Omnibus, MRAP, environmental restoration, defense foreign currency fluctuations, ship costs, drug interdiction, classified, and natural disasters.

The type of major defense appropriations that are reprogrammed internal to the defense department, over the period studied, led to a representative value of varying detail. Operations and Maintenance accounted for a majority of reprogramming through almost every fiscal year. In only two fiscal years procurement exceeded O&M by approximately one percent. Procurement averaged about 23.6 percent of reprogramming over the 10 year time period. Ranging from zero to 10 percent, military construction and military housing held the least portion of reprogrammed dollars. However, we found that MILPERS was affected the least in FY07 and FY08.

DOD statistical data showed erratic values. The 10-year mean in real dollars equated to approximately \$58 billion, which included both increases and decreases, and PA and IR averages. Separately, PA increases equaled a mean of \$68 billion, PA decreases has a mean of \$58.4 billion, IR increases averaged \$40.4 billion, and IR decreases averaged \$65 billion. The CV for DOD over the course of the past decade signified increasing dispersion in each of the respective FY. Once again FY08 was an outlier with high CV in IR for both increases and decreases, displaying wide dispersion over the rest of the fiscal years. After FY10 and into FY11 the CV appeared to stabilize.

B. DETERMINING MARINE CORPS EFFECTIVENESS

From fiscal year 2005 to 2014, the presentation and analysis of the data displayed varying results answering the primary research question: The Marine Corps effectiveness of reprogramming actions in relation to the fiscally constrained budget was hypothesized through the Marine Corps reprogramming a totaled of \$10.8 billion over the time period. The average number of Marine Corps reprogramming transactions for PA and IRs were 21.5 and 27.9, respectively; overall reprogramming rose and fell over the decade with a slight downward trend. Noticeably Marine Corps reprogrammed real dollars are on the

downward trend. A comparative assessment of the reprogramming performance was presented across the services as displayed in Figure 15. The Marine Corps reprogrammed the least within the DOD reprogramming only an average 4.6 percent of the total DOD reprogrammed dollars.

The primary research question was also addressed through the five major Marine Corps appropriations reprogrammed over the 10-year period studied were also presented. Major fluctuation in reprogrammed O&M and procurement could be attributed to the MRAP program. With respect to the average budget authority over the time period, the primary appropriation budgeted for within the Marine Corps was active duty MILPERS, and also sourced nearly 40 percent of reprogrammed requirement. However, over ten years covered, procurement required a majority of additional funding via reprogramming, while only 14 percent of the average budget is allocated to procurement. Active duty MILPERS, the major appropriation sourcing a majority of the requirement is the predominantly budgeted appropriation, on average.

An analysis of the statistical data provided a means to view and examine the dispersion, magnitude, and frequency of Marine Corps reprogramming actions. The relatively high mean levels of funding increases were evident in FY 08 through FY 10. Overall the Marine Corps 10-year average in real dollars was \$33.95 million. The difference in the high and low mean for increases equals nearly \$93.2 million and represented by the increases in FY 08 with a low in FY 13, revealing a relatively unstable reprogramming average associated with FY 08 through FY 10.

Most notably are the increases over decreases and the upward trend in increases in CV from a low in FY05 of 2.04 to a high in FY09 of 3.58 and then descends to a rather stable level of dispersion in the remaining FYs.

Reprogrammed decreases demonstrated CV levels that were more stable than increases. Over the time period, the Marine Corps requested increase(s) in funding and decreased their own controlled major appropriations. Occasionally, the Marine Corps submitted increases with funding originating from either the Navy or from DOD controlled transfer accounts. This is not to state that this does not occur with the other

services, nonetheless due to the Marine Corps share in DOD reprogramming this sort of funding origination is more evident. Through FY 12, DOD and Marine Corps reprogramming behave similarly. After FY 12 the correlation reverses with DOD reprogramming fairly constant while the Marine Corps reprogramming falls.

Two types of reprogramming variations occurred in the course of a fiscal year. The first, common variations occurred as a result of the common reprogramming action such as steady budget execution although still requiring small reprogramming variations from the mean. In the context of this thesis, common reprogramming can be considered as from the minimum up to no greater than the 75th percentile of recent reprogramming. Special variation occurs as a result of the special reprogramming event such as the Secretary of Defense special interest in the MRAP program. The special variation from the mean indicates relative high dollar value reprogramming requests. In the context of this thesis, special reprogramming is considered everything greater than the 75th percentile. Common reprogramming must be monitored while special reprogramming must be regulated through analysis and verification.

The typically end result from a thorough analysis of the variation in a typical process is to set controls to minimize the size of the variation. Control of the size of the variation in reprogramming is fundamentally nonexistent. As a reminder, by definition reprogramming is a function of a planned and approved budget authority. It arises out of the unanticipated event that correlates to a higher priority than originally planned. Thus controlling variation, other than congressional oversight and approval, involves fictional regulation of future events. It can be postulated that the regulation of future events demand such elements as to prediction of the enemy's next move (conflicts and war) and natural disasters, and finally to anticipate correct personnel demand along with existing and future equipment.

C. FUTURE RESEARCH

While conducting this thesis a few areas for future research and analysis became evident. However it is recommended that data sources from the DOD or services be verified for access and obtained well in advance.

First, a study into below threshold reprogramming and letter reprogramming, categories of reprogramming not considered in this thesis may lend greater detail or replace a void in the data.

A further breakdown of each of the services reprogramming actions could help solve varying differences from within the services. Especially with the limitation of blue in support of green (BISOG) reprogramming values associated with the Marine Corps and Navy.

The change in the congressionally approved budget authority (base) relative to reprogramming in the respective FY provided further consistent information displaying a downward trend. An analysis of total reprogramming compared to the total budget authority could possibly provide a deeper aspect into the relative percentage of funding shifted within the DOD. Thus providing a method to establish future reprogramming trends ensuring reprogramming remains an effective tool in the execution of a defense budget.

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APPENDIX A. DOD DESCRIPTIVE STATISTICS (AFTER ROUM 2007, AND OUSD[C], 2007-2011, 2012A, 2013, 2014B)

DOD Reprogramming 2005 – 2014 Current (Nominal) Dollar Values in Thousands										
Prior Approval Increases										
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Transaction Qnty	132	185	170	179	162	251	311	201	84	194
Min	0	0	0	0	0	0	0	0	0	0
1 st Quartile	7,123	3,370	2,450	4,300	6,250	2,848	1,751	3,766	3,579	3,579
Median	20,706	15,000	15,900	19,200	19,875	11,858	12,720	13,494	20,988	15,000
3 rd Quartile	69,254	54,985	43,351	50,370	44,869	40,200	40,928	31,000	96,250	33,337
Max	827,000	825,000	688,000	5,000,000	598,900	415,915	669,998	1,000,000	1,968,951	500,000
Inter Quartile	62,131	51,615	40,901	46,070	38,619	37,352	39,177	27,234	92,671	29,758
Range	827,200	825,000	688,000	5,000,000	598,900	415,915	669,998	1,000,000	1,968,951	500,000
μ = Mean	66,319	61,121	51,495	106,888	46,760	34,911	37,215	55,058	125,148	39,984
σ = Std Dev	115,639	115,864	103,328	484,348	83,071	57,043	72,196	133,304	297,939	78,109
CV = σ/μ	1.74	1.9	2.01	4.53	1.78	1.63	1.94	2.42	2.38	1.95
Total Value Increases PA	8,754,078	11,307,443	8,754,211	19,132,885	7,575,129	8,762,735	11,573,714	11,066,767	10,512,472	7,756,888
Prior Approval Decreases										
Transaction Qnty	164	201	175	171	172	252	249	270	213	187
Min	0	0	0	0	0	0	0	0	0	0
1 st Quartile	3,000	2,787	1,598	3,691	4,124	2,059	0	2,063	3,000	2,899
Median	12,756	12,779	10,000	19,500	14,060	9,860	6,295	10,000	14,000	11,400
3 rd Quartile	35,194	38,376	38,550	42,790	37,919	33,267	35,000	31,201	51,400	30,051
Max	1,283,208	1,456,500	800,000	5,000,000	730,000	408,770	1,283,000	1,000,000	969,000	579,600
Inter Quartile	32,194	35,589	36,952	39,099	33,795	31,208	35,000	29,138	48,400	27,152
Range	1,283,208	1,456,500	800,000	5,000,000	730,000	408,770	1,283,000	1,000,000	969,000	579,600
μ = Mean	51,857	54,690	49,798	111,929	43,996	34,512	47,163	41,539	52,725	41,161
σ = Std Dev	128,463	145,579	110,437	496,783	90,429	62,732	134,635	111,070	115,807	90,131
CV = σ/μ	2.48	2.66	2.22	4.44	2.06	1.82	2.85	2.67	2.2	2.19
Total Value Decreases PA	8,504,492	11,484,828	8,714,691	19,139,885	7,575,379	8,697,135	11,743,471	11,215,534	11,230,382	7,697,023
PA Variation	(249,586)	177,385	(39,520)	7,000	250	(65,600)	169,757	148,767	717,910	(59,865)
Internal Reprogramming Increases										
Transaction Qnty	505	381	338	417	305	333	295	374	254	226
Min	20	2	0	1	0	0	0	0	0	0
1 st Quartile	1,384	900	1,000	1,186	1,162	1,324	813	463	382	395
Median	5,000	4,490	3,871	70,365	3,988	6,000	4,152	3,385	2,741	2,264
3 rd Quartile	19,032	19,328	13,706	24,766	15,020	25,891	24,247	16,962	13,083	10,764
Max	913,171	1,207,796	656,609	7,443,000	1,835,000	3914,000	1,071,153	511,955	969,000	414,720
Inter Quartile	17,648	18,428	12,706	23,580	13,858	24,567	23,434	16,499	12,701	10,369
Range	913,151	1,207,794	656,609	7,442,999	1,835,000	3,914,000	1,071,153	511,955	969,000	414,720
μ = Mean	30,711	36,320	20,964	70,565	38,220	68,784	33,263	23,037	24,536	19,524
σ = Std Dev	93,018	117,457	59,056	423,751	149,279	325,095	104,955	63,148	80,995	50,164
CV = σ/μ	3.03	3.23	2.82	6.01	3.91	4.73	3.16	2.74	3.3	2.57
Total Value Increases IR	15,508,978	1,383,022	7,085,801	29,425,746	11,657,173	22,905,086	9,812,473	8,615,677	6,232,085	4,412,380
Internal Reprogramming Decreases										
Transaction Qnty	366	230	263	324	192	230	124	180	155	97
Min	1	1	0	0	0	14	0	0	0	0
1 st Quartile	1,200	1,069	1,000	1,000	1,046	1,488	2,000	1,074	1,005	1,541
Median	4,985	3,807	2,600	3,316	3,148	3,827	10,000	5,285	5,000	7,579
3 rd Quartile	22,822	20,000	8,253	15,250	9,625	21,346	71,890	35,061	25,341	39,895
Max	1,810,000	3,148,686	787,582	9,200,000	3,000,000	3,914,000	1,581,153	793,913	582,106	598,704
Inter Quartile	21,622	18,931	7,253	14,250	8,579	19,858	69,890	33,987	24,336	38,354
Range	1,809,999	3,148,685	787,582	9,200,000	3,000,000	3,913,986	1,581,153	793,913	582,106	598,704
μ = Mean	42,357	60,709	26,942	90,820	60,714	99,574	79,133	47,568	40,234	45,488
σ = Std Dev	148,161	251,712	91,517	630,609	258,180	459,885	199,319	120,398	89,064	89,585
CV = σ/μ	3.5	4.15	3.4	6.94	4.25	4.62	2.52	2.53	2.21	1.97
Total Value Decreases IR	15,502,704	13,963,101	7,085,801	29,425,746	11,657,173	22,902,084	9,812,473	8,562,159	6,236,339	4,412,380
IR Variation	(6,274)	125,079	0	0	0	(3,002)	0	(53,518)	4,254	0
Total Increases	24,263,056	25,145,465	15,840,012	45,558,631	19,232,302	31,667,821	21,386,187	19,682,444	16,744,557	12,169,268
Total Decreases	24,007,196	25,447,929	15,800,492	48,565,631	19,232,552	31,599,219	21,555,944	19,777,693	17,466,721	12,109,403
Total DOD Variation	(255,860)	302,464	(39,520)	7,000	250	(68,602)	169,757	95,249	722,164	(59,865)

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APPENDIX B. VARIATIONAL REPROGRAMMING (AFTER ROOM 2007, AND OUSD[C], 2007-2011, 2012A, 2013, 2014B)

		Total Increases	Relative Increases	Total Decreases	Relative Decreases	Variation
2005	DOD-Wide	5,358	22%	11,505	47%	(6,147)
	Army	10,951	45%	7,631	31%	3,320
	Navy	2,381	10%	1,495	6%	887
	Air Force	4,718	19%	2,558	11%	2,160
	Marines	854	4%	1,083	4%	(229)
	FY Total	24,263	100%	24,272	100%	(9)
2006	DOD-Wide	4,024	16%	12,854	51%	(8,830)
	Army	13,087	52%	7,362	29%	5,726
	Navy	2,341	9%	1,803	7%	538
	Air Force	4,811	19%	2,422	10%	2,389
	Marines	883	4%	1,007	4%	(123)
	FY Total	25,147	100%	25,448	100%	(301)
2007	DOD-Wide	3,282	21%	6,185	39%	(2,903)
	Army	7,350	46%	5,503	35%	1,847
	Navy	1,972	12%	1,437	9%	535
	Air Force	2,618	17%	2,002	13%	615
	Marines	619	4%	673	4%	(55)
	FY Total	15,840	100%	15,800	100%	40
2008	DOD-Wide	7,002	14%	27,268	56%	(20,226)
	Army	25,628	53%	10,707	22%	14,921
	Navy	5,815	12%	4,657	10%	1,158
	Air Force	7,965	16%	5,292	11%	2,673
	Marines	2,149	4%	641	1%	1,508
	FY Total	48,559	100%	48,566	100%	(7)
2009	DOD-Wide	2,948	15%	9,923	52%	(6,975)
	Army	9,998	51%	5,612	29%	4,167
	Navy	1,836	10%	1,082	6%	754
	Air Force	3,159	16%	2,338	12%	820
	Marines	1,510	8%	269	1%	1,241
	FY Total	19,232	100%	19,225	100%	8
2010	DOD-Wide	9,156	29%	20,599	65%	(11,443)
	Army	14,400	45%	5,508	17%	8,891
	Navy	2,980	9%	1,978	6%	1,002
	Air Force	2,970	9%	3,217	10%	(247)
	Marines	2,163	7%	297	1%	1,866
	FY Total	31,668	100%	31,599	100%	69
2011	DOD-Wide	3,626	17%	9,144	42%	(5,518)
	Army	9,635	45%	7,728	36%	1,907
	Navy	2,436	11%	964	4%	1,473
	Air Force	4,224	20%	3,370	16%	854
	Marines	1,464	7%	350	2%	1,114
	FY Total	21,386	100%	21,556	100%	(170)
2012	DOD-Wide	3,692	19%	10,831	55%	(7,139)
	Army	7,691	39%	3,823	19%	3,868
	Navy	2,434	12%	1,804	9%	630
	Air Force	4,891	25%	3,147	16%	1,744
	Marines	975	5%	172	1%	803
	FY Total	19,682	100%	19,778	100%	(95)
2013	DOD-Wide	3,654	22%	5,418	31%	(1,763)
	Army	7,769	46%	6,557	38%	1,212
	Navy	1,693	10%	1,890	11%	(197)
	Air Force	3,579	21%	3,091	18%	488
	Marines	49	0%	510	3%	(461)
	FY Total	16,745	100%	17,467	100%	(722)
2014	DOD-Wide	2,744	23%	4,038	33%	(1,294)
	Army	3,910	32%	4,282	35%	(372)
	Navy	2,692	22%	1,564	13%	1,128
	Air Force	2,658	22%	1,975	16%	683
	Marines	166	1%	251	2%	(85)
	FY Total	12,169	100%	12,109	100%	60
Total		234,691		235,819		(1,128)

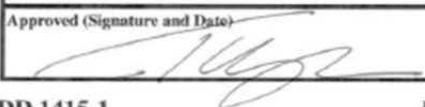
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APPENDIX C. PRIOR APPROVAL AND INTERNAL REPROGRAMMING DOD BREAKDOWN (AFTER ROUM 2007, AND OUSD[C], 2007-2011, 2012A, 2013, 2014B)

Nominal Values in Billions		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total	Average (Mean)	STDDEV	Coef of VAR
		Entire DOD													
Number of Reprogramming Transactions	Prior Approval	297	393	334	342	330	493	552	469	291	379	3880	388	88.615	0.228
	Internal Reprogramming	871	602	596	733	492	560	419	551	393	323	5540	554	162.615	0.294
	DoD Number Total	1168	995	930	1075	822	1053	971	1020	684	702	9420	942	159.697	0.170
Dollar Value of Reprogramming Actions	Prior Approval	8.754	11.307	8.754	19.133	7.575	8.763	11.574	11.067	10.512	7.757	105.196	10.52	3.364	0.320
	Internal Reprogramming	15.509	13.839	7.086	29.426	11.657	22.905	9.812	8.616	6.232	4.412	129.495	12.95	7.892	0.609
	DoD Number Total	24.26	25.15	15.84	48.56	19.23	31.67	21.39	19.68	16.74	12.17	234.691	23.47	10.370	0.442
		DOD-Wide													
Number of Reprogramming Transactions	Prior Approval	41	43	84	65	70	95	126	115	64	81	784	78	27.945	0.356
	Relative PA	14%	11%	25%	19%	21%	19%	23%	25%	22%	21%				
	Internal Reprogramming	281	198	225	278	149	165	156	209	140	95	1896	190	60.241	0.318
	Relative IR	32%	33%	38%	38%	30%	29%	37%	38%	36%	29%				
	DoD Number Total	322	241	309	343	219	260	282	324	204	176	2680	268	57.065	0.213
Dollar Value of Reprogramming Actions	Prior Approval	0.264	0.733	1.824	1.578	0.954	2.569	2.127	1.847	1.812	2.162	15.868	1.587	0.718	0.453
	Internal Reprogramming	5.095	3.291	1.457	5.424	1.994	6.587	1.500	1.846	1.843	0.582	29.618	2.962	2.038	0.688
	DoD Number Total	5.358	4.024	3.282	7.002	2.948	9.156	3.626	3.692	3.654	2.744	45.486	4.549	2.054	0.452
		Army													
Number of Reprogramming Transactions	Prior Approval	108	184	119	110	111	140	163	112	77	111	1235	123.50	30.809	0.249
	Relative PA	36%	47%	36%	32%	34%	28%	30%	24%	26%	29%				
	Internal Reprogramming	204	137	104	147	124	127	83	95	74	68	1163	116.30	40.923	0.352
	Relative IR	23%	23%	17%	20%	25%	23%	20%	17%	19%	21%				
	Army Total	312	321	223	257	235	267	246	207	151	179	2398	436.00	53.586	0.123
Dollar Value of Reprogramming Actions	Prior Approval	6.447	6.972	4.591	9.465	4.290	3.598	5.298	4.392	5.639	2.226	52.919	5.292	2.007	0.379
	Internal Reprogramming	4.504	6.116	2.759	16.163	5.489	10.801	4.337	3.299	2.130	1.684	57.282	5.728	4.500	0.786
	Army Total	10.951	13.087	7.350	25.628	9.780	14.400	9.635	7.691	7.769	3.910	110.201	20.037	5.946	0.297
		Air Force													
Number of Reprogramming Transactions	Prior Approval	75	80	78	77	92	113	123	116	74	94	922	92.20	18.737	0.203
	Relative PA	25%	20%	23%	23%	28%	23%	22%	25%	25%	25%				
	Internal Reprogramming	143	119	100	147	112	118	86	128	87	86	1126	112.60	22.717	0.202
	Relative IR	16%	20%	17%	20%	23%	21%	21%	23%	22%	27%				
	Air Force Total	218	199	178	224	204	231	209	244	161	180	2048	204.80	25.969	0.127
Dollar Value of Reprogramming Actions	Prior Approval	0.944	1.688	1.183	4.090	1.638	1.306	2.057	3.185	2.238	1.535	19.865	1.987	0.974	0.490
	Internal Reprogramming	3.774	3.123	1.434	3.875	1.520	1.664	2.167	1.705	1.341	1.123	21.728	2.173	1.033	0.476
	Air Force Total	4.718	4.811	2.617	7.965	3.159	2.970	4.224	4.891	3.579	2.658	41.593	4.159	1.604	0.386
		Navy													
Number of Reprogramming Transactions	Prior Approval	53	57	42	68	46	114	110	106	56	72	724	72.40	27.480	0.380
	Relative PA	18%	15%	13%	20%	14%	23%	20%	23%	19%	19%				
	Internal Reprogramming	192	119	142	135	78	124	63	91	77	55	1076	107.60	42.558	0.396
	Relative IR	22%	20%	24%	18%	16%	22%	15%	17%	20%	17%				
	Navy Total	245	176	184	203	124	238	173	197	133	127	1800	180.00	43.001	0.239
Dollar Value of Reprogramming Actions	Prior Approval	0.621	1.077	0.695	3.882	0.652	1.013	1.466	1.397	0.787	1.685	13.276	1.328	0.971	0.731
	Internal Reprogramming	1.761	1.263	1.276	1.933	1.185	1.967	0.971	1.037	0.906	1.006	13.304	1.330	0.406	0.305
	Navy Total	2.381	2.341	1.972	5.815	1.836	2.980	2.436	2.434	1.693	2.692	26.580	2.658	1.175	0.442
		Marine Corps													
Number of Reprogramming Transactions	Prior Approval	20	29	11	22	11	31	30	20	20	21	215	21.50	7.044	0.328
	Relative PA	7%	7%	3%	6%	3%	6%	5%	4%	7%	6%				
	Internal Reprogramming	51	29	25	26	29	26	31	28	15	19	279	27.90	9.469	0.339
	Relative IR	6%	5%	4%	4%	6%	5%	7%	5%	4%	6%				
	Marine Corps Total	71	58	36	48	40	57	61	48	35	40	494	49.40	12.020	0.243
Dollar Value of Reprogramming Actions	Prior Approval	0.478	0.837	0.460	0.118	0.041	0.277	0.626	0.246	0.036	0.148	3.268	0.327	0.267	0.817
	Internal Reprogramming	0.376	0.046	0.159	2.031	1.469	1.887	0.838	0.729	0.013	0.018	7.564	0.756	0.783	1.036
	Marine Corps Total	0.854	0.883	0.619	2.149	1.510	2.163	1.464	0.975	0.049	0.166	10.832	1.083	0.735	0.678

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APPENDIX D. FISCAL YEAR 2007 PRIOR APPROVAL REPROGRAMMING REQUEST (FROM OUSD[C], 2007)

<i>Unclassified</i>		REPROGRAMMING ACTION – PRIOR APPROVAL						Page 1 of 4	
Subject: Mine Resistant Ambush Protection (MRAP) Vehicle Program Appropriation Title: Other Procurement, Army, 07/09; Research, Development, Test, and Evaluation, Army, 07/08; Procurement, Marine Corps, 07/09; and Research, Development, Test, and Evaluation, Navy, 07/08								DoD Serial Number: FY 07-08 PA Includes Transfer? Yes	
Component Serial Number:		<i>(Amounts in Thousands of Dollars)</i>							
		Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprogramming Action		Revised Program	
Line Item		Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
a		b	c	d	e	f	g	h	i
<p>This reprogramming action is submitted for prior approval because these actions use special transfer authority and exceed established reprogramming thresholds. This action reprograms \$497.9 million to accelerate the procurement of the joint-Service Mine Resistant Ambush Protection (MRAP) vehicle program for the Army and the Marine Corps. This reprogramming action uses \$32.1 million of special transfer authority pursuant to section 9003 in Title IX of Public Law 109-289, the DoD Appropriations Act, 2007. These actions reprogram funding in support of higher priority items, based on unforeseen military requirements, than those for which originally appropriated; and are determined to be necessary in the national interest. They meet all administrative and legal requirements and none of the items has previously been denied by the Congress. Once the Congress appropriates funding in the FY 2007 GWOT Supplemental for the MRAP vehicle program, the Department will submit a reprogramming action to transfer funds back to these appropriations.</p>									
FY 2007 REPROGRAMMING INCREASES:						<u>+497,900</u>			
<u>Other Procurement, Army, 07/09</u>						<u>+50,000</u>			
<u>Budget Activity 3: Other Support Equipment</u>									
<u>Ground Standoff Mine Detection System (GSTAMIDS)</u>									
		224,075		224,075		+50,000		274,075	
<u>Explanation:</u> These funds will be made available to the Program Executive Officer Ground Combat Systems, enabling Army participation in the MRAP program with the Marine Corps to include source selection, Product Verification Test (PVT), purchase of GSTAMIDS class vehicles for PVT, and subsequent fielding to units.									
<u>Research, Development, Test, and Evaluation, Army, 07/08</u>						<u>+20,000</u>			
<u>Budget Activity 5: System Development & Demonstration</u>									
<u>PE 0604642A Light Tactical Wheeled Vehicles</u>									
		4,500		4,500		+20,000		24,500	
<u>Explanation:</u> These funds will be made available to the Program Executive Officer Ground Combat Systems, enabling Army participation in MRAP program with the Marine Corps to include the procurement of test vehicles that may be destroyed in testing, follow on test and evaluation, and other appropriate Research, Development, Test, and Evaluation (RDT&E) costs.									
Approved (Signature and Date)  MAR 28 2007									

DD 1415-1

UNCLASSIFIED

Subject: Mine Resistant Ambush Protection (MRAP) Vehicle Program						DoD Serial Number: FY 07-08 PA	
Appropriation Title: Other Procurement, Army, 07/09; Research, Development, Test, and Evaluation, Army, 07/08; Procurement, Marine Corps, 07/09; and Research, Development, Test, and Evaluation, Navy, 07/08						Includes Transfer? Yes	
Component Serial Number:		<i>(Amounts in Thousands of Dollars)</i>					
	Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprogramming Action		Revised Program
Line Item	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity
a	b	c	d	e	f	g	h
Procurement, Marine Corps, 07/09					+415,800		
Budget Activity 6: Engineer and Other Equipment							
EOD Systems	659,505		664,242		+415,800		1,080,042
Research, Development, Test, and Evaluation, Navy, 07/08					+12,100		
Budget Activity 7: Operational Systems Development							
PE 0206624M Marine Corps Combat Services Support	17,524		17,456		+12,100		29,556
Explanation: The MRAP vehicle program is a critical priority joint-Service program that will deliver vehicles to theater as soon as possible to counter urgent force protection threats. The Department of the Navy has included \$427.9 million (\$415.8 million in the Procurement, Marine Corps appropriation and \$12.1 million in the RDT&E, Navy appropriation) in its FY 2007 GWOT Supplemental request to support testing and procuring 244 MRAP vehicles for the Marine Corps. In order to ensure funding is in place to allow production and delivery in the earliest possible timeframe, reprogramming of \$427.9 million in advance of the FY 2007 GWOT Supplemental is required. Once the Congress appropriates funding in the FY 2007 GWOT Supplemental for the MRAP vehicle program, the Department intends to submit a reprogramming action to transfer funds back to these appropriations.							
FY 2007 REPROGRAMMING DECREASES:					-497,900		
Other Procurement, Army, 07/09					-70,000		
Budget Activity 1: Tactical and Support Vehicles							
High Mobility Multi-Purposed Wheeled Vehicle (HMMWV)	1,661,363		1,684,538		-70,000		1,614,538
Explanation: These funds will be made available to the Program Executive Officer Ground Combat Systems due to reprioritization of funds to enable participation in the MRAP program with the Marine Corps. This reprogramming is a cross leveling of programmatic resources available for force protection to system capability. Resources are being reprogrammed to a vehicle with a higher level of protection that can be used selectively for the more dangerous mission profiles. These funds were originally for fourth quarter HMMWV program fielding costs that can be deferred for several months until the FY 2007 GWOT supplemental is enacted. Once the Congress appropriates funding in the							

Unclassified

REPROGRAMMING ACTION – PRIOR APPROVAL

Page 3 of 4

Subject: Mine Resistant Ambush Protection (MRAP) Vehicle Program						DoD Serial Number: FY 07-08 PA			
Appropriation Title: Other Procurement, Army, 07/09; Research, Development, Test, and Evaluation, Army, 07/08; Procurement, Marine Corps, 07/09; and Research, Development, Test, and Evaluation, Navy, 07/08						Includes Transfer? Yes			
Component Serial Number:		<i>(Amounts in Thousands of Dollars)</i>							
		Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprogramming Action		Revised Program	
Line Item		Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
a		b	c	d	e	f	g	h	i
FY 2007 GWOT Supplemental for the MRAP vehicle program, the Department intends to submit a reprogramming action to transfer funds back to this program.									
Procurement, Marine Corps, 07/09						-427,900			
Budget Activity 2: Weapons and Combat Vehicles									
AAV7A1 PIP		51,929		55,885		-12,100		43,785	
Explanation: Funds for modifications to the AAV7A1 PIP are available as a near-term financing source to accelerate the critical acquisition of the MRAP vehicle program. These funds must be restored upon receipt of the FY 2007 GWOT Supplemental for the MRAP vehicle program, and no later than at the beginning of the fourth quarter of FY 2007. Funds for modifications to the AAV7A1 PIP will be placed on contract upon restoration.									
Budget Activity 4: Communications and Electronics Equipment									
Command Post Systems		122,104		124,082		-30,000		94,082	
Explanation: Funds for Blue Force Tracker in the Command Post Systems line item are available as a near-term financing source to accelerate the critical acquisition of the MRAP vehicle program. These funds must be restored upon receipt of the FY 2007 GWOT Supplemental for the MRAP vehicle program, and no later than at the beginning of the fourth quarter of FY 2007. Funds for Blue Force Tracker will be placed on contract upon restoration.									
Radio Systems		876,640		731,403		-160,000		571,403	
Explanation: Funds for the Tactical Communications Modernization program in the Radio Systems line item are available as a near-term financing source to accelerate the critical acquisition of the MRAP vehicle program. These funds must be restored upon receipt of the FY 2007 GWOT Supplemental for the MRAP vehicle program, and no later than at the beginning of the fourth quarter of FY 2007. Funds for the Tactical Communications Modernization program will be placed on contract upon restoration.									

DD 1415-1

UNCLASSIFIED

Subject: Mine Resistant Ambush Protection (MRAP) Vehicle Program						DoD Serial Number: FY 07-08 PA	
Appropriation Title: Other Procurement, Army, 07/09; Research, Development, Test, and Evaluation, Army, 07/08; Procurement, Marine Corps, 07/09; and Research, Development, Test, and Evaluation, Navy, 07/08						Includes Transfer? Yes	
Component Serial Number:	<i>(Amounts in Thousands of Dollars)</i>						
	Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprogramming Action		Revised Program
Line Item	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity
a	b	c	d	e	f	g	h
Budget Activity 5: Support Vehicles							
5/4T Truck HMMWV (MYP)							
	851	593,672	851	593,672	-406	-61,000	445 532,672
Explanation: Funds for HMMWV Expandable Capacity Vehicles in the 5/4T Truck HMMWV (MYP) line item are available as a near-term financing source to accelerate the critical acquisition of the MRAP vehicle program. These funds must be restored upon receipt of the FY 2007 GWOT Supplemental for the MRAP vehicle program, and no later than at the beginning of the fourth quarter of FY 2007. Funds for HMMWV Expandable Capacity Vehicles will be placed on contract upon restoration.							
Motor Transport Modifications	163,600		163,600		-144,800		18,800
Explanation: Funds for MTRV Reducible Armor in the Motor Transport Modifications line item are available as a near-term financing source to accelerate the critical acquisition of the MRAP vehicle program. These funds must be restored upon receipt of the FY 2007 GWOT Supplemental for the MRAP vehicle program, and no later than at the beginning of the fourth quarter of FY 2007. Funds for MTRV Reducible Armor will be placed on contract upon restoration.							
Budget Activity 6: Engineer and Other Equipment							
Family of Construction Equipment							
	118,972		118,972		-20,000		98,972
Explanation: Funds for state of the art construction equipment, bulldozers, graders, winches, etc. in the Family of Construction Equipment line item are available as a near-term financing source to accelerate the critical acquisition of the MRAP vehicle program. These funds must be restored upon receipt of the FY 2007 GWOT Supplemental for the MRAP vehicle program, and no later than at the beginning of the fourth quarter of FY 2007. Funds for Family of Construction Equipment will be placed on contract upon restoration.							

APPENDIX E. DOD CURRENT (NOMINAL) GRAPHS AND CHARTS

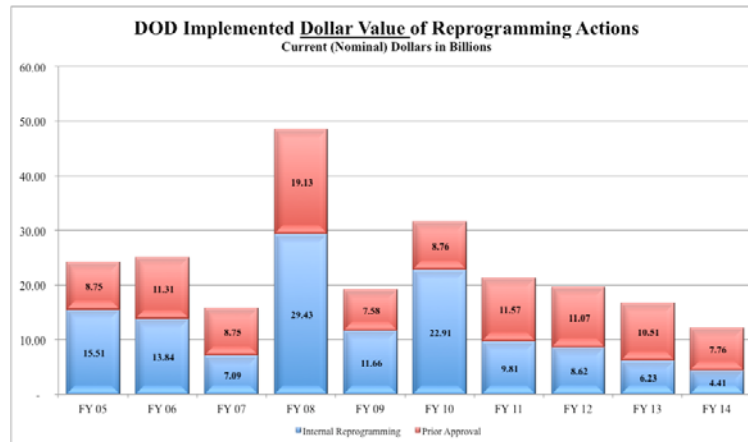


Figure 28. Nominal - PA and IR DOD Reprogramming Dollar Value (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

Table 13. Nominal – DOD Omnibus Transactions (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

FY	PA Transactions	IR Transactions	PA Dollar Value (\$M)	IR Dollar Value (\$M)
2005	128	-	1,603/1,375	-
2006	167	-	-	-
2007	157	53	3,153/3,248	132/132
2008	120	-	2,809/2,733	-
2009	156	-	3,025/2,955	-
2010	193	-	2,790/2,796	-
2011	377	-	6,778/6,947	-
2012	256	-	7,137/7,330	-
2013	-	-	-	-
2014	207	-	4,073/4,028	-
Total	1761	53	31,368/31,412	132/132

Table 14. Nominal – DOD MRAP Transactions (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

FY	Prior Approval	Internal Reprogramming (
2005	-	-
2006	-	-
2007	1,685/1,685	-
2008	-	17,582/17,582
2009	100/100	5,651/5,651
2010	-	11,650/11,650
2011	-	3,666/3,666
2012	-	2,647/2,647
2013	-	645/645
2014	-	-
Total	1,785/1,785	41,841/41,841

(Increases/Decreases in \$M)

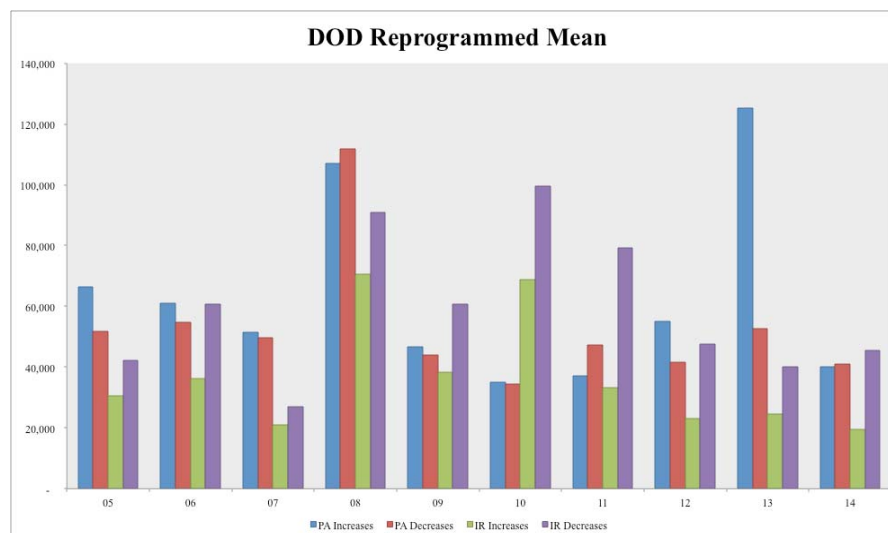


Figure 29. Nominal – DOD Reprogrammed Mean (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

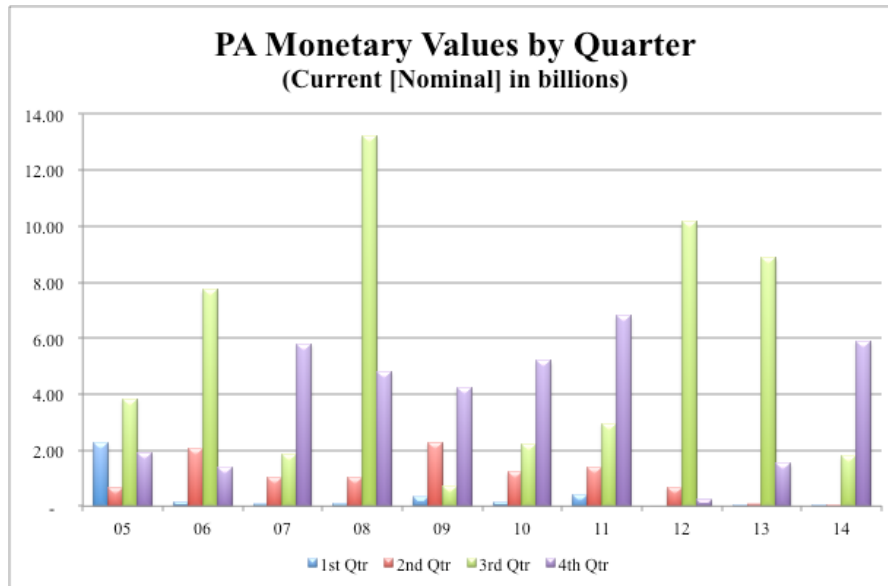


Figure 30. Nominal – PA Monetary Values by Quarter (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

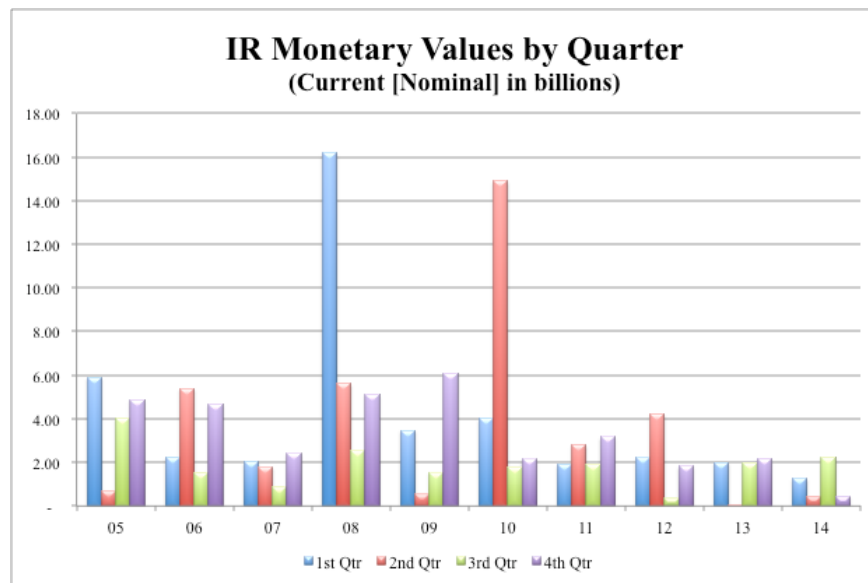


Figure 31. Nominal – IR Monetary Values by Quarter (after Roum 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

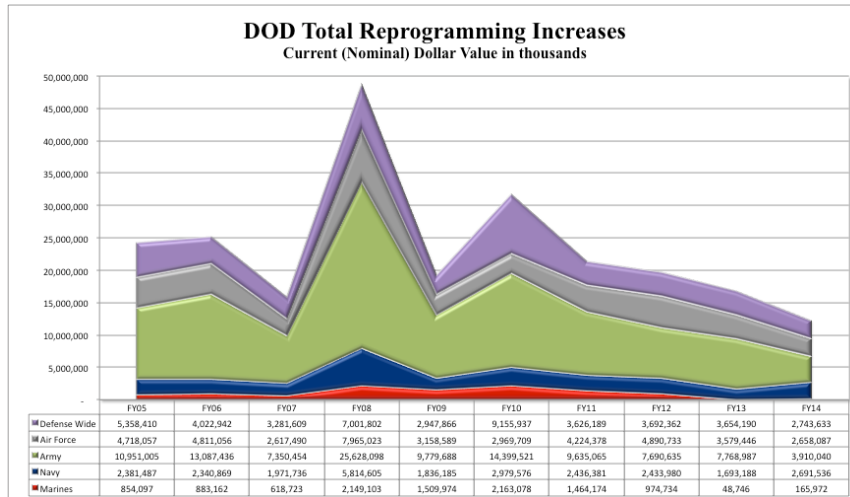


Figure 32. Nominal -Total DOD Reprogramming Increases by Service (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

APPENDIX F. USMC CURRENT (NOMINAL) GRAPHS AND CHARTS

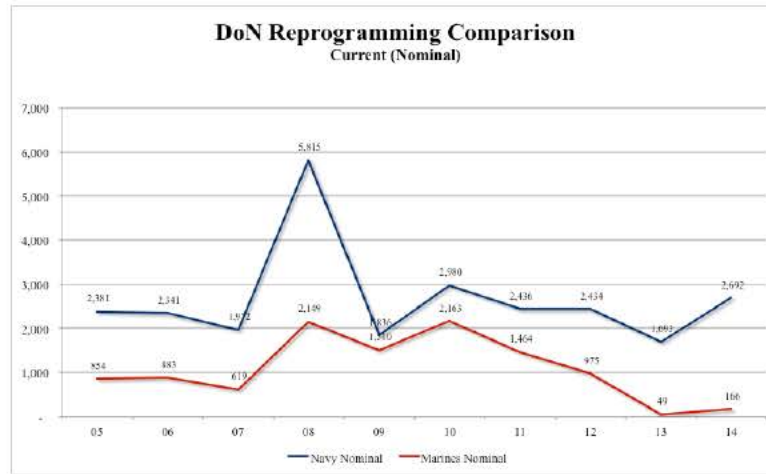


Figure 33. Nominal – DON Reprogramming Comparison (after Rousm 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

Table 15. Nominal - Marine Corps Reprogrammed Values by Major Appropriation (after Rousm 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

Increases											
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
MILPERS	648.9	463.7	.164	60.5	57.3	171.3	260.6	104.8	11	97.9	1,876.3
MILPERS Reserve	2.9	7.8	1.4	1.0	38.1	1.8	35.6	14.3	27.9	35.5	166.3
O&M	68	294.2	10.5	437.5	386.5	598.1	775.3	690.3	9.6	13.8	3,283.8
O&M Reserve	7.3	.8	.095	22.1	.095	.23	.3	.34	.2	.185	31.5
Procurement	391.5	116.7	606.7	1,628	1,028	1,391.6	392.4	165	-	18.6	5,738.4
Appn Total	1,118.6	883.2	618.7	2,149.1	1,510.0	2,163.0	1,464.2	974.7	48.7	165.9	11,096.4

Decreases											
MILPERS	598.7	333.6	-	152	36.3	118.1	119.8	166.9	206.2	72.6	1,804.2
MILPERS Reserve	32.9	5.6	6.6	-	-	-	10.1	.59	.003	.21	56.0
O&M	127.5	385.9	66.5	123.9	33.1	105.7	213.7	4.4	227	125.2	1,413.0
O&M Reserve	18.9	3.3	3.3	-	2.6	1.7	1	.14	54	-	84.9
Procurement	40.2	278.1	596.8	365.5	197.2	71.8	5.3	-	23	53	1,630.9
Appn Total	818.2	1006.5	673.2	641.4	269.2	297.3	350	172	510.2	251	4,988.9

Nominal (Current) Values in Millions

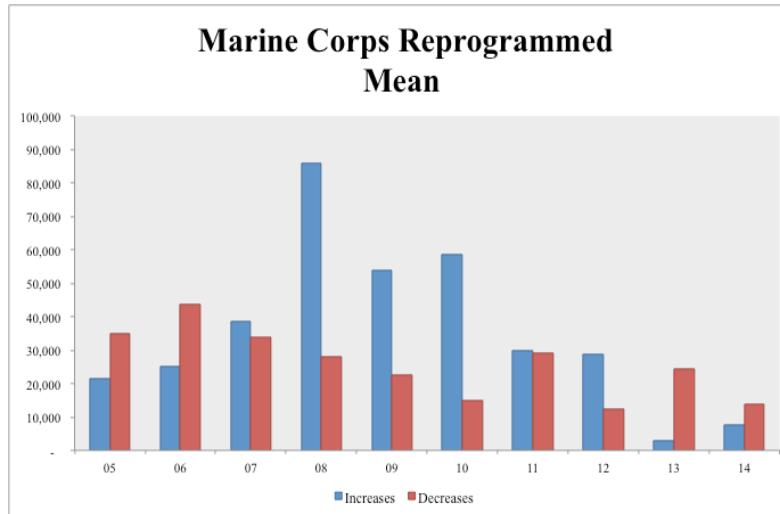


Figure 34. Nominal - USMC Reprogrammed Mean (after Roud 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

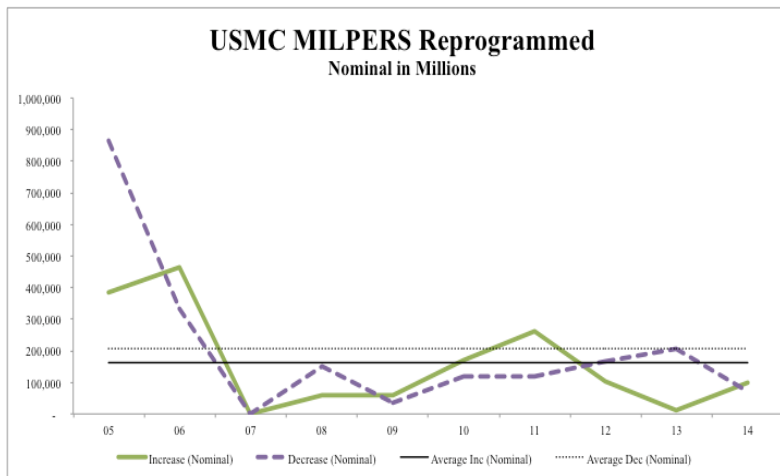


Figure 35. Nominal - Marine Corps MILPERS Reprogramming (after Roud 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

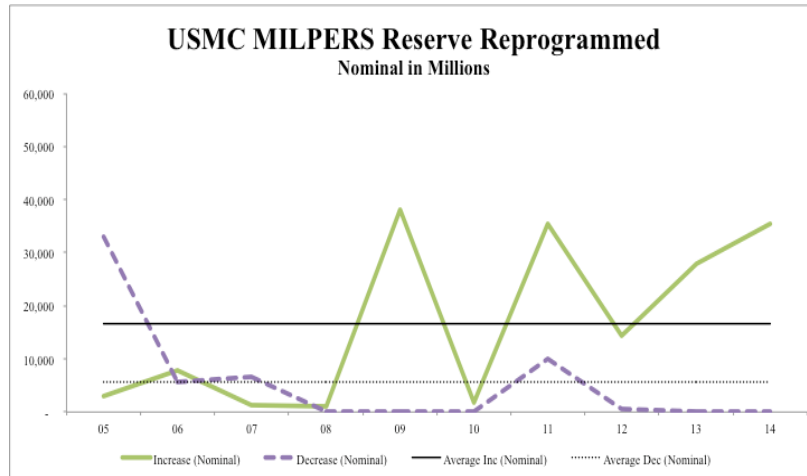


Figure 36. Nominal - Marine Corps MILPERS Reserve Reprogramming (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

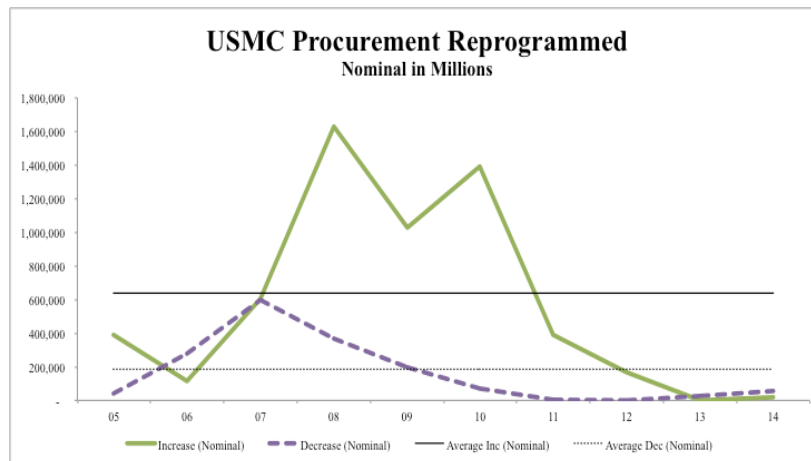


Figure 37. Nominal - Marine Corps Procurement Reprogramming (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

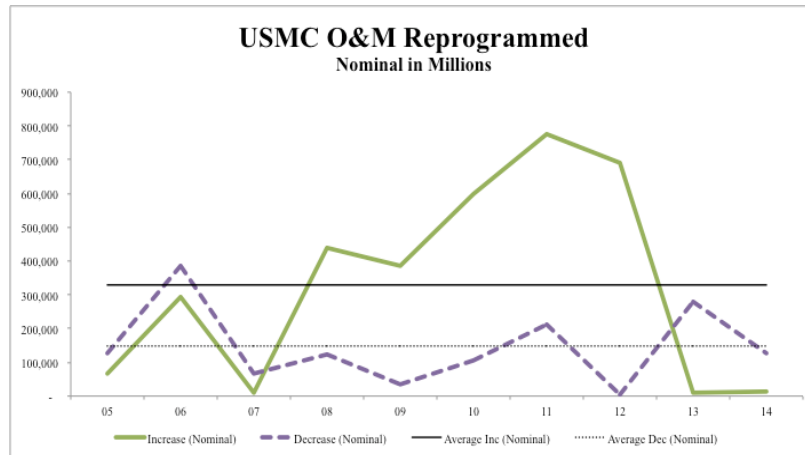


Figure 38. Nominal - Marine Corps O&M Reprogramming (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

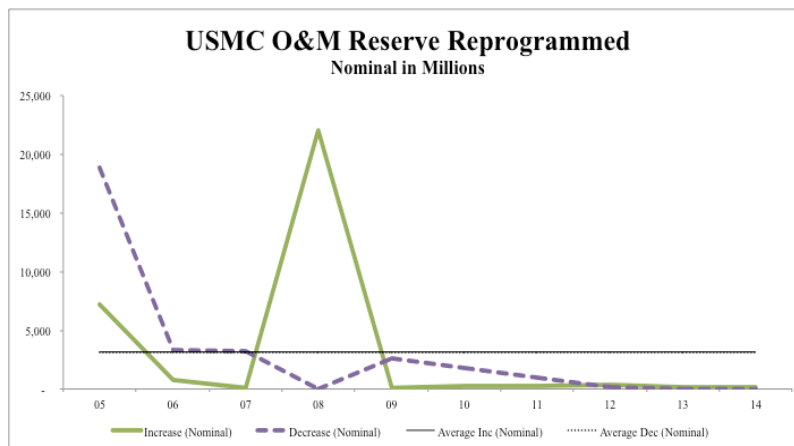


Figure 39. Nominal - Marine Corps O&M Reserve Reprogramming (after Rous 2007, and OUSD[C], 2007-2011, 2012a, 2013, 2014b)

LIST OF REFERENCES

- Appropriations Act of Congress 2008. Public Law 110-116 (HR 3304). Retrieved from <http://www.dod.mil/dodgc/olc/docs/PL110-116.pdf>
- Appropriations Act of Congress 2013. Public Law 113-76 (HR 3547). Retrieved from <http://www.dod.mil/dodgc/olc/docs/PL113-76.pdf>
- Brook, D. (2014, 2nd). *Budget cycles: Legislative considerations; Congress and the defense budget*. Monterey, CA: Naval Postgraduate School.
- Christensen, M. D. (2012). *The executive budget process: An overview*. Washington, DC: Congressional Research Service. Retrieved from <http://www.fas.org/sgp/crs/misc/R42633.pdf>
- Defense Acquisition University. (2006). Defense acquisitions guidebook. Retrieved from <https://dag.dau.mil/Pages/Default.aspx>
- Dixon, M. (2013). *Descriptive statistics*. Monterey, CA: Naval Postgraduate School.
- Feickert, A. (2014). *Marine Corps amphibious combat vehicle (ACV) and Marine personnel carrier (MPC): Background and issues for Congress*. Washington, DC: Congressional Research Service. Retrieved from <http://www.fas.org/sgp/crs/weapons/R42723.pdf>
- Fisher, L. (1975). *Presidential spending power*. Princeton, NJ: Princeton University Press.
- Gates, R. M. (2014). *Duty: Memoirs of a secretary at war*. New York, NY: Alfred A. Knopf.
- General Accounting Office. (1986a). Budget reprogramming: Department of Defense process for reprogramming funds. Retrieved from <http://www.gao.gov/products/GAO/NSIAD-86-164BR>
- General Accounting Office. (1986b). DOD Financial Management: Improper use of the foreign currency fluctuations account. Retrieved from <http://www.gao.gov/assets/210/208656.pdf>.
- General Accounting Office. (1989). Budget reprogramming: Opportunities to improve DOD's reprogramming process. Retrieved from: <http://www.gao.gov/products/GAO/NSIAD-89-138>
- General Accounting Office. (2000). DOD should further improve visibility and accountability of O&M fund movements. Retrieved from <http://www.gao.gov/products/GAO/NSIAD-00-18products/GAO/NSIAD-00-18>

- Howard, M. (Ed.). (1976). *Carl Von Clausewitz; On war*. Princeton, NJ: Princeton University Press.
- Jones, L. R., & Bixler, G. C. (1992). *Mission financing to realign national defense*. Greenwich, CT: JAI Press.
- Jones, L. R., Candreva, P. J. & DeVore, M. R. (2012). *Financing national defense: Policy and process*. Charlotte, NC: IAP-Information Age Pub Inc.
- Jones, L. R. & McCaffrey, J., (2008). *Budgeting, financial management, and acquisitions reform in the U.S. Department of Defense*. Charlotte, NC: IAP-Information Age Pub Inc.
- Keller, G. (2009). *Statistics for management and economics* (8th ed.). Mason, OH: South-Western Cengage Learning.
- Nussbaum, D. (2014). *Cost estimating processes IV*. Monterey, CA: Naval Postgraduate School.
- Office of Management and Budget. (1992). *Guidelines and discount rates for benefit-cost analysis of federal programs*. Washington, DC: Office of Management and Budget.
- Office of the Assistant Secretary of the Navy (Financial Management and Comptroller). (2012). *Financial Management Policy Manual*, NAVSO P-1000. Retrieved from http://finance.hq.mil/fmc/PDF/P_1000_chg_67.pdf
- Office of the Assistant Secretary of the Navy (Financial Management and Comptroller). (2015). FY15 Budget Data Book. Retrieved from http://www.finance.hq.navy.mil/FMB/15pres/FY15_Data_Book.pdf
- Office of the Under Secretary of Defense (Comptroller). (2007). Budget execution - reprogramming actions. Retrieved from <http://comptroller.defense.gov/budgetexecution/reprogrammingfy2007.aspx>
- Office of the Under Secretary of Defense (Comptroller). (2008). Budget execution - reprogramming actions. Retrieved from <http://comptroller.defense.gov/budgetexecution/reprogrammingfy2008.aspx>
- Office of the Under Secretary of Defense (Comptroller). (2009). Budget execution - reprogramming actions. Retrieved from <http://comptroller.defense.gov/budgetexecution/reprogrammingfy2009.aspx>
- Office of the Under Secretary of Defense (Comptroller). (2010). Budget execution - reprogramming actions. Retrieved from <http://comptroller.defense.gov/budgetexecution/reprogrammingfy2010.aspx>

- Office of the Under Secretary of Defense (Comptroller). (2011). Budget execution - reprogramming actions. Retrieved from <http://comptroller.defense.gov/budgetexecution/reprogrammingfy2011.aspx>
- Office of the Under Secretary of Defense (Comptroller). (2012a). Budget execution - reprogramming actions. Retrieved from <http://comptroller.defense.gov/budgetexecution/reprogrammingfy2012.aspx>
- Office of the Under Secretary of Defense (Comptroller). (2012b). *Department of Defense financial management regulation, 7000.14-R*, Vol. 3. Washington, DC: Defense Automated Printing Service. Retrieved from <http://comptroller.defense.gov/FMR.aspx>
- Office of the Under Secretary of Defense (Comptroller). (2013). Budget execution - reprogramming actions. Retrieved from <http://comptroller.defense.gov/budgetexecution/reprogrammingfy2013.aspx>
- Office of the Under Secretary of Defense (Comptroller). (2014a). National defense budget estimates for FY 2014 (Green Book). Washington, DC; Defense Automated Printing Service. Retrieved from http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2014/FY14_Green_Book.pdf
- Office of the Under Secretary of Defense (Comptroller). (2014b). Budget execution - reprogramming actions. Retrieved from <http://comptroller.defense.gov/budgetexecution/reprogrammingfy2014.aspx>
- Potvin, L., (2011). *Practical financial management: A handbook for the defense department financial manager* (11th ed.). Monterey, CA: Naval Postgraduate School.
- Roum C. J. (2007). *The nature of DOD reprogramming*. (Master's thesis, Naval Postgraduate School). Retrieved from www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA473540
- Tyszkiewicz, T. M., & Daggett, S. (1998). *A defense budget primer*. Washington, DC: Congressional Research Service. <https://www.fas.org/sgp/crs/natsec/RL30002.pdf>

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